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ABSTRACT

Based on the two-year analysis of career development needs conducted by the Program for Women in Health Sciences, University of California, San Francisco and funded by the U.S. Office of Health Resources Opportunity, this guide provides step-by-step instructions for career planning and exploration for laypersons or helping professionals. Over 100 careers in the health sciences, health professions, paraprofessional health services, and public health fields are described along with educational requirements, cost of training, employment opportunities, career contingencies, and sources for further information. Strategies for selecting an appropriate training program, gaining admission, surviving training, and seeking employment are also included. (Author)

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WOMEN AND HEALTH CAREERS:

A GUIDE FOR CAREER EXPLORATION

Edited by

SHERYL BURT RUZEK

PROGRAM FOR WOMEN IN HEALTH SCIENCES
UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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FOREWORD

This career exploration guide is the result of the efforts of the Program for Women in Health Sciences. Dr. Sheryl Ruzek, the Program's Community Coordinator, gave conceptual leadership to the undertaking. Indeed, her knowledge of career development patterns within health science occupations and professions provided the framework for the inquiry.

Dr. Ruzek, Velma Parness, Program Manager; Jean Born, Resource and Guidance Center Coordinator; Sharon Collins, Third World Coordinator; Gleoria Bradley-Sapp, Program Representative; Ellen White, Editorial Assistant; and Verena Fong, Secretary began two years ago to assess systematically the educational/career development needs of women in health sciences. As this work progressed it became clear that the material could be organized so as to be useful to career counseling centers, and to individuals who are considering entering, reentering or changing career direction in the health professions and occupations.

The material presented here is the outgrowth of one of the first efforts of the Program for Women in Health Sciences, established on the San Francisco campus of the University of California in 1976 by a grant from the Chancellor. Dr. Martha White, a distinguished social psychologist on the research faculty of the School of Nursing, well-known for her work on women's career patterns in the sciences, was instrumental in establishing the program.

In the summer of 1976, Dr. White and I accepted a contract from the Office of Health Resources Opportunity, Health Resources Administration, Department of Health, Education and Welfare to develop program activities. This contract has been renewed in each of the subsequent years enabling us to:

1. Establish a resource and guidance center to identify career barriers for women in the health sciences;

2. Design programs to enhance women's opportunities for professional and personal growth;

3. Collect information on traditional and newly emerging health occupations and professions;

4. Conduct workshops and special activities to facilitate the career development of women across the spectrum of professions and occupations in the health sciences;

5. Sponsor local, regional, and national symposia, colloquia and conferences in order to identify and disseminate information on research, policies and practices related to women's careers and women's health.

A concerted effort has been made to incorporate the concerns and perspectives of Third World women in all activities. A national symposium, entitled "The Minority Woman: Professionalism at What Cost?" will be held early in 1979. Other symposia and courses designed especially for counselors who will

use this career exploration guide make up the primary focus of program activities for the 1978-79 academic year.

I especially appreciate the accomplishments of the program's staff as expressed in this document. I recommend it, with considerable pleasure, to your use.

Lucy Ann Geiselman, Ph.D.
Dean Continuing Education Health Sciences
University of California, San Francisco
Director, Program for Women in Health Sciences

PREFACE AND ACKNOWLEDGEMENTS

A major task of the Program for Women in Health Sciences (PWHS) has been to assess women's roles as health care providers and to identify barriers to women's career development across the spectrum of health occupations and professions. To do this, we reviewed the existing literature, interviewed key people engaged in health careers research and education, practicing health workers, students and community leaders. We also held public programs both to disseminate information and to learn more ourselves.

In May 1977 the PWHS sponsored a regional conference, "Women's Health: Research, Communication, and Policy," on the University of California, San Francisco campus. A panel of researchers, educators, administrators and students were invited to present their views on women's careers in the health professions and workshops were held to give participants an opportunity to explore a variety of health issues. Conference evaluations indicated great interest on the part of women in learning more about career opportunities.

A second conference, "Women's Leadership and Authority in the Health Professions," was held in June 1977, on the U.C. Santa Cruz campus. There, a small group of nationally recognized scholars with expertise in areas relating to women's careers met to exchange ideas. Papers have been issued as proceedings, and a special issue of Comment, a tabloid on research and action about women, was devoted to the conference. The conference provided an opportunity to collect additional information on women's career patterns and career development needs, and reinforced our belief that simply getting women into occupational careers was only the first step needed to bring women into the mainstream of professional life.

During the past year, the PWHS sponsored a series of courses through University Extension, community organizations and adult education programs. Regardless of the specific topic of the program, women came to learn more about health careers. Many women wondered what they could do to make themselves employable after being out of the labor force for years. Others were concerned with getting into graduate school or moving out of dead-end jobs. This volume is written for them, in hopes that the information that they and others provided will help other women choose meaningful, satisfying occupatonal careers.

Many people have contributed to this volume. We wish to acknowledge the assistance provided by members of the PWHS Regional Advisory Committee who offerred helpful advice on the organization and inclusion of material and suggested key persons to contact. Eugene Salazar, Assistant Dean of Students, University of California, San Francisco, provided material on admission procedures for graduate and professional schools that is being compiled by the statewide U.C. Coordinating Committee on Graduate and Professional Advancement. Maryland Pennell and Shirlene Showell, American Public Health Association, generously granted permission to reprint many tables on women in health careers that they prepared for the International Conference on Women in Health held in Washington, D.C. June 16 - 18, 1975. Lucy Sells, former Executive Specialist for Minorities and Women, American Sociological Association, provided valuable information on women in the sciences and alerted us to the importance of early training in mathematics. Arlene Kaplan Daniels, Professor of Sociology and

Director of the Program on Women, Northwestern University, directed us toward key researchers and data sources, and reviewed a preliminary draft.

We are especially grateful to the following outside readers who saved us from many errors on the occupational summary sheets. Without their efforts, this project could not have been completed.

Aiko Ada, Ph.D., Administrative Intern, Office of the Dean of Students, California State University, Hayward.

Dillu Ashby, Technical Director Nuclear Medicine, University of California, San Francisco.

Cleo Berkum, M.S.W., A.C.S.W., Ph.D. candidate, University of California, Berkeley; Women's Task Force, N.A.S.W.

Robert Brigante, D.D.S., Assistant Dean and Clinical Professor, School of Dentistry, University of California, San Francisco.

Bonnie Bullough, R.N., M.S., Professor of Nursing, Long Beach State College, Long Beach, CA.

Cecilia Burciaga, Ph.D., Assistant Provost for Faculty Affairs, Stanford University.

Lillian Cartwright, Ph.D., Institute of Personality Research and Assessment, University of California, Berkeley.

Lorraine Corden, M.S.W., Women's Task Force, N.A.S.W.

Garrett Cuneo, Executive Secretary, Chiropractic Licensing Board, Sacramento, CA.

Lydia Daniels, R.R.A., Director Medical Records Services, University of California, San Francisco.

Willard Eng, M.S., Career Counselor, Career Planning and Placement Center, University of California, Berkeley.

Carolyn Flagiello, R.N., Skills Center, San Francisco.

Richard Flower, Ph.D., Professor and Vice Chairman, Otolaryngology, Audiology and Speech Clinic, University of California, San Francisco.

Agnes Fortney, L.V.N., Executive Director, California Vocational Nurses' Association, Oakland, CA.

Ettle Francis, R.N., J.D., Lecturer, Family Health and Community Nursing, University of California, San Francisco.

Eileen Gambrill, Ph.D., Associate Professor, School of Social Welfare, University of California, Berkeley.

Irene Gilbert, Ph.D., Director and Assistant Clinical Professor, Curriculum in Physical Therapy, University of California, San Francisco.

George Gotelli, M.S., Specialist and Clinical Supervisor of Laboratory Technicians, Moffitt Hospital, San Francisco.

Frances Hareth, User Services Specialist, Women's Educational Equity Communications Network (W.E.E.C.N.), San Francisco.

Joanna Harris, M.A., Director, Department of Creative Arts Therapy, Lone Mountain College, San Francisco.

Donald Henker, Assistant to the Dean, School of Optometry, University of California, Berkeley.

Carol Hopkins, M.S., R.D., Director, Dietetic Internship, Nutrition and Dietetics, University of California, San Francisco.

Dale Houston, M.A., O.T.R., Chief Rehabilitation Services, Langley Porter Institute, University of California, San Francisco.

Sheila Humphreys, Ph.D., Associate Director, CCEW-Women's Center, University of California, Berkeley.

Amber Jones, M.Ed., Assistant Director, Management Programs, Association of American Medical Colleges, Washington, D.C.

Patricia Kelly, Assistant Research Geneticist, The Hooper Foundation, University of California, San Francisco.

Joseph Maniscalco, D.C., private practice, San Francisco.

Kathleen Marr, A.R.R.T., Clinical Supervisor Radiology, University of California, San Francisco.

Peter Ng, Director, Educational Media Resources, University of California, San Francisco.

Sallie Olsen, R.N., M.S., Nursing Consultant, San Francisco.

Jean Poupard, M.A., Clinical Professor, Division of Dental Hygiene, University of California, San Francisco.

Deirdre Conway Rand, Ph.D., Counseling Psychologist Student Health Service, University of California, San Francisco.

Esther Rice, M.S.W., A.C.S.W., L.C.S.W., Women's Task Force, N.A.S.W.

Maureen Rich, R.R.T., Technical Director, Respiratory Therapy, University of California, San Francisco.

Julius A. Roth, Ph.D., Professor of Sociology, University of California, Davis.

Eugene Salazar, Assistant Dean of Students, Student Special Services Program, Dean of Students Office, University of California, San Francisco.

Frances Saunders, M.P.H., Staff Associate, National Center for Health Education, San Francisco; Former Associate Dean, School of Public Health, University of California, Berkeley.

Paul Scherer, D.P.M., Vice-President and Academic Dean, California College of Podiatric Medicine.

Betty Soules, O.T.R., Sr. Occupational Therapist, University of California, San Francisco.

Joseph Spinelli, D.V.M., Director, Animal Care Facility, University of California, San Francisco.

Walter Tenerowicz, Administrative Assistant, Medical Records, University of California, San Francisco.

Donna Ver Steeg, R.N., Ph.D., Associate Professor of Nursing, University of California, Los Angeles.

Robert Vreeland, Associate Development Engineer, Research and Development Laboratory, University of California, San Francisco.

Malcolm Watts, M.D., Associate Dean, School of Medicine and Director, Extension Program in Medical Education, University of California, San Francisco.

Donna Williams, M.S., R.D., Associate Director, Nutrition and Dietetics, University of California, San Francisco.

Betty Wislinsky, M.S., Associate Professor of Biological Sciences, Lone Mountain College, San Francisco.

Edmund Wong, Sr. Development Engineer, Laboratory Medicine and Clinical Laboratories, University of California, San Francisco.

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Dr. Lucy Ann Geiselman, Dean of Continuing Education, and Director of the PWHS, deserves recognition not only for the key role she played in establishing the PWHS, but for encouraging the program to undertake projects of lasting value. Her continuous encouragement and support for this project are gratefully acknowledged.

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The staff of the PWHS who researched and wrote the occupational summaries are to be commended for their commitment to making this volume as complete and accurate as possible and for their willingness to persist in a long, arduous and at times frustrating task. What kept us all going was the interest and enthusiasm of the women we counsel. Many women tell us that this volume is exactly what they need. We hope that others, too, will find it useful.

Sheryl Burt Ruzek
Editor
September 1978

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ABOUT THE AUTHORS

JEAN TAGGART BORN is Continuing Education Specialist and Resource and Guidance Coordinator, PWHS. She holds a B.A. in political science from the University of California, Berkeley, and is completing her M.A. in speech and communication studies at San Francisco State University. She is co-author of "Women in Health Sciences" in Second Careers for Women (J.D. Fairbank and H. Bryson, eds., Second Careers for Women, P.O. Box 9660, Stanford, CA 94305). Prior to joining the PWHS, Ms. Born worked in personnel at UCSF for over twenty years where she was involved in placement, employee development and career counseling, especially for women and minorities. She is a member of the executive board of the Bay Area Consortium on the Educational Needs of Women and has served in an advisory capacity to numerous boards and organizations involved in health careers and personnel. She has also organized career workshops for women in management and health communications.

GLEORIA BRADLEY-SAPP is Program Representative, PWHS. She received a B.A. in biology from Lone Mountain College and is a master's degree candidate in health education at San Francisco State University. Before coming to the Program, Ms. Bradley-Sapp worked as coordinator of volunteers for a local voluntary health association and was a co-counselor at an alternative women's clinic. She is an active member of the Health Education Section of the American Public Health Association.

SHARON COLLINS is Third World Coordinator and Continuing Education Specialist, PWHS. She received a B.A. in political science from Whittier College and an M.S.W. from the University of Southern California and is beginning work on a Ph.D. in psychology. Ms. Collins also has a private practice in Oakland, California, where she specializes in support groups for black women and consultation for career advancement. She is also active in the Association of Black Social Workers.

VELMA PARNESS is Program Manager and Continuing Education Specialist, PWHS. She received her B.A. in sociology from San Francisco State University and an M.P.H. in Health Education from the University of California, Berkeley. Prior to joining the PWHS, Ms. Parness was a research associate with Advocates for Women in San Francisco where she co-authored The California Study on Women in Nontraditional Employment (Advocates for Women, 256 Sutter Street, San Francisco, California).

SHERYL BURT RUZEK is Community Coordinator and Continuing Education Specialist, PWHS. She earned a B.A. from San Francisco State University, and an M.A. and Ph.D. in sociology from the University of California, Davis. She is the author of a book, The Women's Health Movement, Feminist Alternatives to Medical Control (New York: Praeger Special Studies) and numerous articles on client-professional relations. Dr. Ruzek has taught university courses on women and health and the sociology of occupations and has done research on health care systems, the development of professions, and volunteers. She is a member of the advisory board, Center for the Study of Women, Institute for Scientific Analysis in San Francisco, and has served as a consultant to research projects and public advisory bodies on women's health sciences.

ELLEN WHITE is Editorial Assistant, PWHS. She holds a B.A. from Goddard College, Plainfield, Vermont, with specialization in writing and Photography.

CHAPTER 1: WHAT KIND OF HEALTH CAREER DO I WANT?

Jean Taggart Born

THE NEED FOR CAREER PLANNING

Few people really plan their future, work or otherwise, despite evidence that thoughtful planning and decision-making results in increased self-esteem and a sense of control over one's life. First job opportunities often determine the whole course of work careers, attitudes toward work and even life styles (Haase 1978). Even boys, who traditionally learn to think about what they will "do" when they grow up (that is, what their life-work will be) as men often make career choices haphazardly (Janis 1978).

Women, even less often, think in terms of careers; and when they do, it is generally in terms of a job to hold until they marry and have children, or a career that they will be able to "fall back on" if it becomes necessary to work. In reality, most women spend a large portion of their lives in the labor force. Chapter 2 documents the employment patterns of American women and considers some of the factors that influence whether or not women work outside the home and the types of careers they pursue.

Men and women who do make well-considered decisions about choice of life work and plot upward moves, typically do so differently. Men usually regard career plans as separate from other life plans such as marriage and family. In contrast, women rarely separate career planning from marriage and family; or if they do, are considered deviant. In fact, women who do plan careers often think in terms of career versus marriage, whereas men assume that they will be able to have both a career and a family. This has been particularly true of girls and women considering health careers in high status fields such as medicine and the sciences that have been regarded as "men's professions." Today, however, more women expect to combine careers with marriage and children, although these dual roles are often difficult to manage, as indicated in Chapter 2.

Health is the largest national industry, and women entering or reentering the labor force often seek careers in health. Over three-fourths of all health workers are women, and they are clustered in occupations that require less training or education than the highest status professions that men typically fill. Women's health occupations additionally are viewed as extensions of the female role because they emphasize and are associated with nurturing, a societal role women typically fulfill. This is a common assumption of both counselors and women themselves since the vast majority of both paid and unpaid health providers in the home and community indeed are women.

It is not our intent to discourage women from entering traditionally female health occupations. Many of these occupations are attractive in that they offer good prospects for employment, carry prestige and involve skills that generally are transferable from one geographical location to another (Brown 1975). We do encourage counselors and individual women to explore career decisions in depth and to reexamine assumptions about women's traditional roles. Some women who enter health careers may find greater satisfaction in nontraditional health careers than in the traditional ones.

Today there are many options; the choice need not be between becoming a doctor or a nurse, although these are the best-known sexually segregated health occupations.

This chapter does not attempt to start the process of career and life planning from scratch. Counselors have expertise in these areas already and there are many guides for individual career exploration available (see, for example, Scholz, Prince, and Miller 1975; Lakein 1973; Bolles 1972; Janis and Mann 1977). Some of these are particularly helpful in assisting women to make time in their lives for setting and achieving their life goals, including educational and occupational goals.

This guide assumes that counselors and women are at the point of asking which health career will best meet an individual woman's needs. Chapters 3, 4 and 5 describe a wide array of specific health occupations. The length of education and training, need for geographical mobility, age and physical health, working conditions, personal needs and expectations for work satisfaction all influence women's career choices. We have included basic information, references for further reading and addresses of occupational associations to assist women in making informed choices.

Although we encourage women to choose any occupation that seems interesting and challenging, there are many factors that limit women's options. Some of the barriers to women entering certain fields or working while their children are young are discussed in Chapter 2. Chapter 6 describes some strategies for entering and completing career education and moving up once one has embarked on an occupational career. We also describe model programs that have been established to assist women, particularly minority women, to overcome the multiple handicaps of racism and poverty as well as sexism in health occupations training programs.

We encourage women to avail themselves of counseling services in community colleges, universities, women's centers and public agencies. Most of these services are provided free or at a nominal fee. In addition, talking with people working in various health occupations, or students in training programs can be extremely helpful in deciding what kind of health career to pursue.

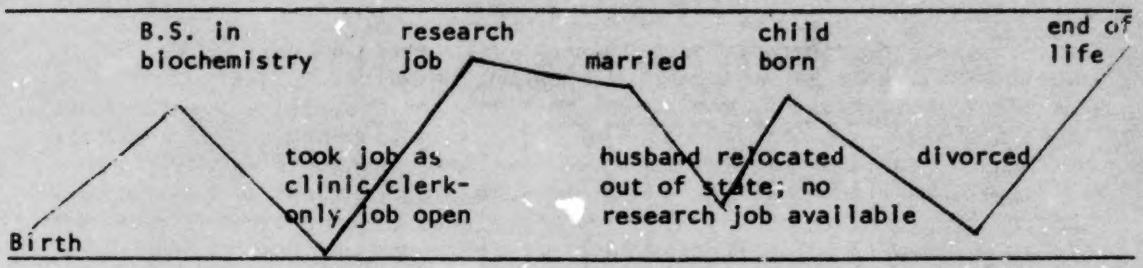
CAREER PLANNING EXERCISES

To make a rational career choice (which may require anywhere from 1 - 13 years of training beyond high school), it is helpful to review significant life events in the past. These life experiences have led to this transitional point at which one is seriously considering choosing an occupational career for the first time, or as a career change. Additionally, it is helpful to reevaluate one's values and interactions with others, particularly in relation to one's work decisions. The following simple exercises are recommended for women at any stage of their career planning.

1. Self Assessment

   A. The Life-Line: On a large sheet of paper draw a line graph that represents significant events and transitional points in your life from birth to the present, noting your age at each event. As in most graphs, there will be high and low points. Continue the line to the end of your life; this is fantasy, an important aspect of planning. When you have completed the graph, take some time to think about how and why your life-line has brought you to the present transitional point.

Example



B. Expanding the Life-Line: On additional work sheets make separate lists of the following types of information about your life:

1. Education and Work

   a. Education (informal as well as formal)

   b. Work (paid and unpaid -- may include home tasks, jobs, volunteer work, self projects, serious hobbies and interests)

   c. Knowledge and skills acquired from education and work

   d. Tasks and school subjects you particularly enjoyed and those you disliked -- and why

   e. Ways in which you prefer and those in which you dislike to work (for example, alone, under pressure, one project at a time)

2. Perceptions of Self

   a. Character traits you like and dislike about yourself

   b. Behavior you would like to retain, improve or discard

   c. Communication processes you like and dislike in yourself and in others in interpersonal interactions

II. Specific Career Planning

By looking at the picture of your life up to the present, of the events and the values by which you have lived, you will now have more information on which to base future plans. Keeping this information in mind, you are ready to make more lists.

A. In very broad terms, list goals you would like to achieve. Do not limit yourself at this point by perceived obstacles; give your fantasies full play. List all goals (including occupational and family) regardless of apparent conflicts. Think of them all as "careers."

B. Narrow the goals to those you want most, and list them in order of importance to you.

C. Explore the most attractive, realistic goals using the approaches suggested in Chapter 6 (pp. 139-41).

D. Complete a career decision ledger (illustrated below) for each major goal. The ledger is most helpful when one has already ascertained what is actually involved in taking action. If, for example, a woman believes that she has a reasonable chance of being accepted into a training program and has a realistic knowledge of the time and expense involved, she can use the ledger to weigh the advantages and disadvantages of going ahead and applying to school. Obviously, individual circumstances vary enormously. Young women with no dependents have many options, whereas older women with family responsibilities may have fewer options.

CAREER DECISION LEDGER

Career decision to be made:	Enrolling in a doctoral program versus remaining in present professsion as Licensed Clinical Social Worker	
Expectations	Positive	Negative
Tangible gains and losses -- for self	1. More control and independence in work 2. More money and choice of positions 3. Opportunity for research, writing in broad areas	1. Reversion to penny-pinching lifestyle for a few years 2. Postponing house purchase, a strongly desired goal
Tangible gains and losses -- for others	1. None	1. None
Emotional advantages and losses-- for self	1. Ego satisfaction	1. The more educated I am, the fewer prospects for marriage 2. I would like children--there is the biological timeclock
Emotional gains and losses -- for others (approval or disapproval)	1. Parents will be proud that I fulfill their hopes--expectations they didn't have for themselves	1. The more education I have, the less marriageable I am seen to be 2. Stereotype of the unmarried career woman 3. Parents concerned about my marital state and no grandchildren

Although the young woman in the preceding example thought that she had considered all of the pros and cons of a lengthy doctoral program and had taken the necessary steps toward enrollment, she actually had been postponing the final decision. Through the process of writing out specific tangible and psychological gains and losses, she confronted her ambivalence more honestly. In her case, the tangible gains and losses from entering a doctoral program did not involve others close to her. Thus she was able to put the psychological reasons for her ambivalence, such as the possibility of not having children, into proper perspective. She admitted her fears about marriage and family might be assumptions based on her socialization, and in fact there was time to have both career and children, if she really wanted both. She also realized that her parents' ambivalent aspirations for her echoed her own feelings. Recognizing that whichever road she took, they would have mixed feelings, her own conflicts in this area were reduced. As a result, she elected to go ahead with the doctoral program, reasoning that if she didn't, she would always regret it.

STRUCTURAL AND PSYCHOLOGICAL BARRIERS TO CAREER DEVELOPMENT

Although the preceding exercises can help identify goals and psychological barriers that interfere with decision making or taking action to achieve them, real structural obstacles to reaching career goals often do exist. One must learn to separate these structural barriers from psychological barriers to be able to make realistic plans for moving toward meeting goals. The process of identifying obstacles puts them into perspective, and often has the effect of opening up more options. It can also help to formulate contingency plans: secondary plans that can be used as alternative ways to accomplish goals, deal with problems that arise when pursuing important goals or to make alternate goal decisions (Janis and Wheeler 1978, p. 76).

An exercise to help put structural and psychological barriers into the proper perspective is simply to substitute the phrase "I <u>can't</u> do that, because ..." with the phrase "I <u>don't choose</u> to do that, because...". This places responsibility for decisions where it ultimately rests -- on one's self. Phrasing limitations in this manner helps one to identify situations in which goals cannot be reached because of factors beyond one's immediate control such as lack of funds for education or extremely heavy family obligations. It also identifies goals that prove too difficult or unrealistic but that can be replaced by equally satisfying, but more realistic, choices. In reality, many goals could be pursued, but the costs (to one's self or to others) may outweigh the benefits of doing so. In such situations, choosing <u>not</u> to pursue a goal or an alternative goal may be a valid and wise decision.

Some obstacles or significant limitations may seem less discouraging by adding the word "now." For example, a woman might say "I don't choose to enter a graduate program in public health <u>now</u>, because with a young child the combined cost of childcare and tuition will exceed our family income and savings." Facing this reality, the woman could do several things. She could postpone entry until her children were old enough to care for themselves, reexamine her budget to see where she might be able to save some money to finance her education and investigate new avenues for financing graduate education. While none of the solutions would enable the woman to begin graduate study immediately, they all help her work <u>toward</u> a goal rather than giving up entirely.

Often, partial solutions for reaching goals are feasible. For example, a young mother with preschool children might feel that she must forget about the dream of becoming a veterinarian she once gave up to put her husband through law school. Another woman who supports two children by working as a nursing aide, the best job she can get with little education and work experience, still hopes to become a registered nurse. While neither woman may be in a position to choose full-time education, each might be able to share child care with other mothers while they take one course at a time to make up prerequisites for entry into a veterinary medicine or nursing program. Thus in a few years each might be in a better position to realize her occupation goals.

Or, a middle-aged woman with grown children, who had never worked outside her home, might feel uncomfortable enrolling in a full-time program to become a medical technologist, although she has a friend who works as one and is certain she, too, would enjoy the work. To "ease into" this new role, the woman could acquaint herself with the work world by volunteering in a hospital for several months and take one science course at a community college to re-learn the discipline required for study.

When the desired goal seems too difficult to reach after exploring partial solutions, related alternate careers could be explored. For example, a 35 year old woman who was not accepted for medical school 15 years ago despite exceptionally high qualifications, who married and has been working relatively happily as a research assistant, really still wants to be a physician. The prospect of refresher science courses, and up to 13 years of education and clinical training combined with the strains it might place on a happy marriage could result in her dismissing all thoughts of changing careers. She might, however, explore related medical professions such as podiatric medicine or chiropractic, that require fewer years of professional education and training.

In the final analysis the person responsible for determining and making decisions on career and life planning is the individual woman concerned. Others may participate in the process, or must be taken into consideration in defining goals and timetables, but each of us has a unique set of needs and realities in our lives, and each of us has unique sets of social and psychological constraints on our actions.

To sum up the career decision-making process, the first step is to give free rein to fantasies. Then one identifies major goals and barriers to attaining them and searches for small steps that will facilitate reaching those goals. If, in this process, the barriers seem insurmountable, one can then turn to exploring alternative or secondary goals and in similar fashion lay out small steps for achieving the new goal. Finally, "if only" and "when I can" can become psychological barriers at any point, and desired goals can remain fantasies unless the process of reaching goals is reassessed from time to time.

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CHAPTER 2: WOMEN'S CAREER PATTERNS IN THE UNITED STATES -- AN OVERVIEW

Sheryl Burt Ruzek and Sharon M. Collins

THE SOCIAL ORGANIZATION OF HEALTH WORK

Women are prime providers of paid and unpaid health and medical care in the United States. According to the National Center for Health Statistics (1976, p. 9) approximately 75 percent of the 4.7 million persons employed in the health care industry are female. Women also constitute the majority of health volunteers at all levels (Babchuk and Booth 1969; Cull and Hardy 1974; Kurtz and Burrows 1971). In addition, women are providers of health care for their families at home (Carpenter 1975; Polansky 1976).

Stratification

Women's positions and working conditions as both paid and unpaid health care providers are closely tied to their positions in the social stratification system. In the health industry, as in other industries, the occupational hierarchy conforms to the dominant race, class and sex structure; white males dominate high level positions and women and ethnic minorities are clustered in lower level positions (Brown 1975; Ehrenrich 1975; Navarro 1975). This hierarchy reflects the fundamental sex-segregation of occupations observable in society at large (Oppenheimer 1968).

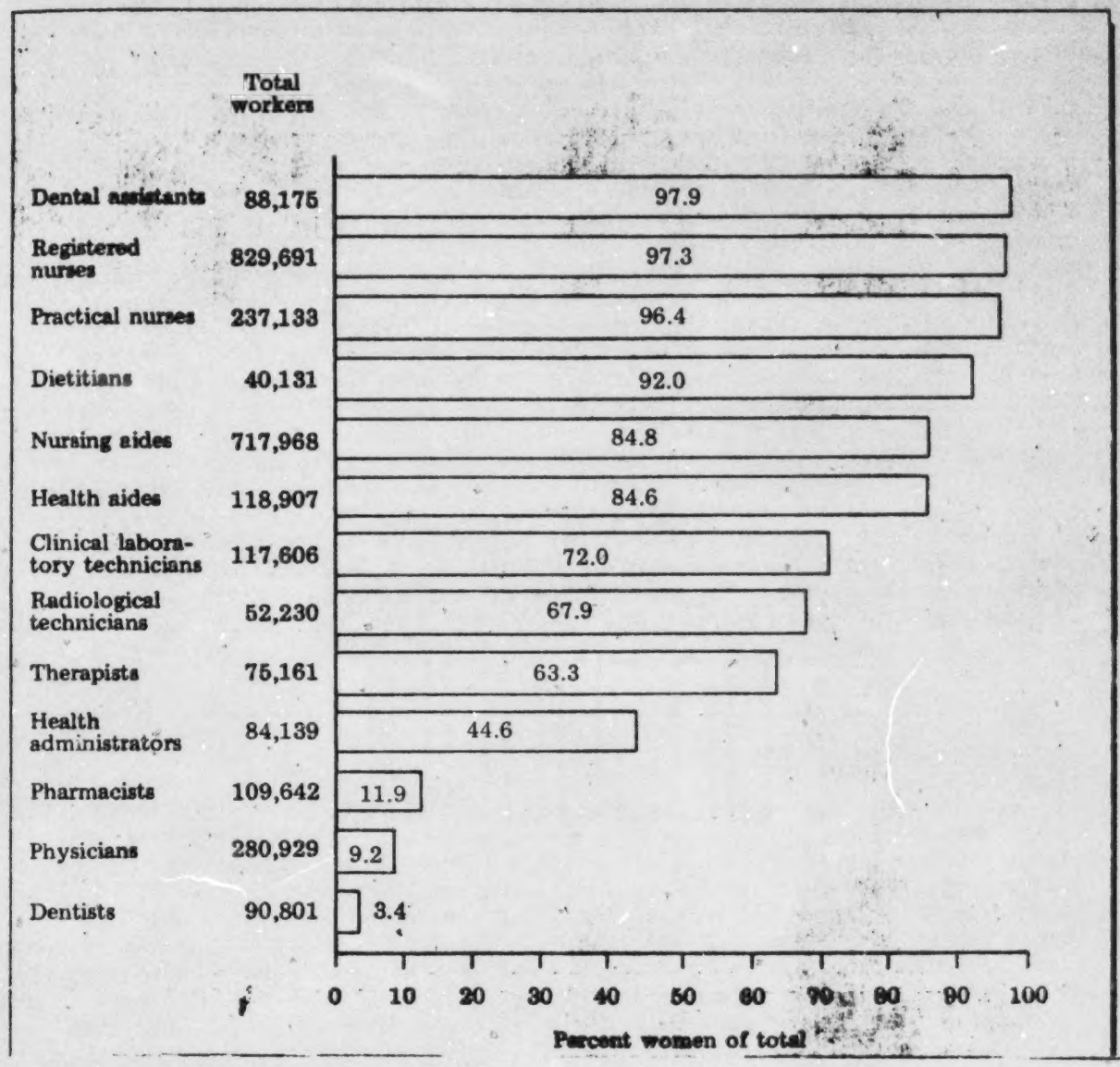
In the health professions in the United States, men traditionally are physicians and dentists, whereas women are likely to be nurses and dental hygienists. For example, over 90 percent of all dietitians, dental hygienists, health record workers, dental assistants and nurses are women whereas over 90 percent of all physicians and dentists are men (Bureau of Health Manpower 1976, p.58). In other countries, such as the Soviet Union, women comprise a majority in many of these fields (Pennell and Showell 1975, pp. 106-44). Table 2.1 illustrates the sex-segregation in well-known health occupations in the United States.

Health occupations are not only sex-segregated, but racially clustered as well. Ethnic minorities comprise only 5.5 percent of all practitioners of medicine and osteopathic medicine, dentistry, optometry, pharmacy, podiatry and veterinary medicine although they comprise approximately 12 percent of the total U.S. population (Bureau of Health Manpower 1976, p. 5). While minorities are underrepresented relative to their proportion in the population in these high-status health occupations, they are overrepresented in the lowest status and lowest-paid positions. In 1970, minorities comprised 27 percent of all nursing aides, orderlies and attendants. Of all minorities employed in health occupations, 21 percent were practical nurses and 22 percent were dietitians (Bureau of Health Manpower 1976, p. 9). In short, minority women's entry into health occupations is largely at the bottom of the occupational hierarchy.

The general pattern of race, class and sex-segregation also prevails in the volunteer sector, where upper-class white women often serve in policy and decision-making roles, while middle and working-class women are more likely to be direct service volunteers (Daniels, Joslyn and Ruzek 1975). Minority women, who more often than white women must work for pay, have lower rates of formal volunteerism and provide direct service to others through the informal networks of kin and community. With the growth of public health service agencies mandating representative boards, more minority women are being recruited for voluntary advisory and policy-making roles.

TABLE 2.1

WOMEN WORKERS IN SELECTED HEALTH OCCUPATIONS: 1970


Total workers
Dental assistants 88,175 97.9
Registered nurses 829,691 97.3
Practical nurses 237,133 96.4
Dietitians 40,131 92.0
Nursing aides 717,968 84.8
Health aides 118,907 84.6
Clinical laboratory technicians 117,606 72.0
Radiological technicians 52,230 67.9
Therapists 75,161 63.3
Health administrators 84,139 44.6
Pharmacists 109,642 11.9
Physicians 280,929 9.2
Dentists 90,801 3.4
0 10 20 30 40 50 60 70 80 90 100
Percent women of total

Reprinted with permission from: Pennell, Maryland and Shirlene Showell (1975) Women in Health Careers, Status of Women in Health Careers in the United States and Other Selected Countries. Washington, D.C.: The American Public Health Association, p. 13.

Specialization - Broadening the Pyramid

Trends in women's occupational patterns and mobility must be understood within the context of the social organization of work. As Hughes (1958) points out, occupations and members of occupations are continuously in the process of upgrading their status by seeking higher remuneration and claiming the right to perform and control complex tasks created by new technology. Occupational groups attempt to raise their status by relegating routinized tasks, or "dirty work," down to lower status groups. Thus the physician has relegated many tasks to nurses who have in turn delegated other tasks to technicians, practical nurses and aides. While this renegotiation may alter the prestige of a particular group, it does not change the basic hierarchical relationships within the health industry that have become increasingly pronounced in recent years.

The division of health labor has become very elaborate and complex. At the turn of the century, there were only three types of workers in hospitals -- physicians, trained nurses and untrained housekeeping aides (Ehrenreich 1975, p. 10). Today, there are over 125 identifiable health occupations and over 250 secondary, specialized designations within these occupations. The progressive replacement of more costly workers by less costly, less skilled employees has been marked by occupations vying and competing with others above and below them for the right to examine, diagnose and provide specific forms of treatment and be remunerated for these activities. While high-status professionals are eager to delegate routine tasks to subordinates, they do no wish to relinquish authority and control over the work. Thus, although physicians delegate many functions to nurses and technicians, they retain a degree of control by requiring medical supervision of all activities and take an active role in regulating the licensing and certification of new allied health workers.

With the growth of paramedical personnel, the actual proportion of physicians and administrators relative to the overall health work force has dramatically declined. For example, in 1900, physicians constituted 52 percent of the health work force; in 1970, physicians and administrators were only 12 percent of the total. Today, there are approximately 400,000 physicians and administrators, most of whom are male, supervising approximately 3,000,000 other health workers, most of whom are female (Ehrenreich 1975, pp. 7-10). Thus, the health care system has become a highly stratified system with control and rewards concentrated at the upper levels.

Occupational Associations

Health workers belong to numerous professional associations and labor unions that promote improvements in working conditions, status and salaries for their members. As a result of occupational segregation, these organizations are often sex-segregated. Within large male-dominated professional associations, women have been largely invisible and outside the inner circles of leadership and power. Female-dominated professional associations have been less prone than male-dominated groups to use aggressive means to gain power, status and higher incomes for their members (Gilb 1966; Ver Steeg 1975). In recent years, however, women have formed their own professional organizations within male-dominated professions. And younger professionals, especially nurses, show increasing acceptance of collective bargaining and other forms of pressure to improve their status (Olesen 1973; Ver Steeg 1975; Proceedings of the Conference on Women's Leadership and Authority in the Health Professions 1977).

Historically, women have been less inclined than men to join labor unions. Between 1966 and 1970, the actual number of women who were union members declined, despite women's increasing rate of participation in the labor force (Raphael 1974). (For studies of women in labor unions see Olesen 1973; Roby 1975b). Organizing the rank and file and generating an aggressive stance is particularly difficult in women's occupational associations because, according to some observers, leaders of these associations are unaccustomed to bargaining and negotiating in the way male union leaders are (Bullough 1975a, 1975b; Ver Steeg 1975).

Income

Women health workers' incomes vary greatly depending on geographical location, specific occupation, and whether women work full or part-time. Women professionals receive relatively high salaries, while women service workers have low salaries as in other industries. Table 2.2 shows the median* weekly income of women in related health occupations in 1972.

TABLE 2.2

-MEDIAN WEEKLY EARNINGS[1] OF WOMEN IN NONGOVERNMENT HOSPITALS IN SELECTED NON-NURSING PROFESSIONAL AND TECHNICAL OCCUPATIONS IN SELECTED METROPOLITAN AREAS, AUGUST 1972

Metropolitan area	Dietitians	Medical librarians	Medical social workers	Medical technologists	Occupational therapists	Pharmacists	Physical therapists	Radiologic technologist (X-ray)
Atlanta	$188.00	—	—	$174.00	—	$219.50	—	$139.00
Chicago	188.00	$186.50	$206.50	184.00	$190.50	260.00	$192.00	164.50
Denver	182.00	—	183.00	169.50	171.50	230.00	168.50	132.50
Minneapolis-St. Paul	190.50	—	183.00	191.00	181.00	264.00	187.00	144.50
New York-Nassau-Suffolk	208.50	194.50	235.50	195.00	209.00	255.00	216.00	205.50
San Francisco-Oakland	208.00	194.50	221.50	233.50	179.50	279.00	208.00	195.50
Seattle-Everett	178.50	—	—	180.00	—	280.00	183.50	155.00
Washington, D.C.-Md.-Va.	200.00	—	213.00	182.00	181.00	287.00	191.00	156.50

[1] Excludes extra pay for work on late shifts.

Source: U.S. Department of Labor, Bureau of Labor Statistics: Individual area reports

Reprinted from: Women's Bureau (1975) 1975 Handbook on Women Workers. U.S. Department of Labor, Employment Standards Administrat[illegible] Bulletin 297. Washington, D.C.: Government Printing Office, p. 15

Income differentials between different types of health workers have increased dramatically in recent decades. For example, between 1949 and 1970, the approximate net median income of general surgeons (male and female combined) has increased from $17,000 to $44,000 annually; internists' income rose from $12,000 to $42,000, general practitioners' from $12,000 to $47,000; dentists' from $6,000 to $27,000. During this same period, the annual gross median income for paramedicals rose from $1,400 to $2,800; service workers' rose from $1,300 to $3,500 (Navarro 1975, p. 4). In short, as health occupations and professions have become more specialized, differential rewards have widened substantially.

* Median income refers to the mid-point of the income range; half of all women in the occupation received more than this; half received less.

In the United States, women's incomes are considerably lower than men's. Since 1939, white full-time women workers' incomes have declined in proportion to white males' earnings, whereas minority women's earnings have increased and come closer to minority men's incomes. For example, as shown in Table 2.3, white women's incomes were 60.8 percent of white men's incomes in 1939, but by 1973 dropped to 56.3 percent. Minority women's incomes increased from 23 percent of white men's earnings and 45 percent of minority men's earnings in 1939 to 49.6 percent of white men's earnings and 71.9 percent of minority men's earnings in 1973. Despite dramatic gains for minority women, they still earn only 88.2 percent of what full-time white women workers earn.

TABLE 2.3

MEDIAN WAGE OR SALARY INCOME OF YEAR-ROUND FULL-TIME WORKERS,[1] BY SEX AND RACE, 1939 AND 1960–73

	Median income				As percent of white men			As percent of minority race men		As percent of white women
	Women		Men							
Year	White	Minority race	White	Minority race	White women	Minority race women	Minority race men	White women	Minority race women	Minority race women
1973	$6,544	$5,772	$11,633	$8,363	56.3	49.6	71.9	78.2	69.0	88.2
1972	6,131	5,320	10,786	7,548	56.8	49.3	70.0	81.2	70.5	86.8
1971	5,749	5,181	9,801	6,928	58.7	52.9	70.7	83.0	74.8	90.1
1970	5,490	4,674	9,373	6,598	58.6	49.9	70.4	83.2	70.8	85.1
1969	5,168	4,231	8,876	6,158	58.2	47.7	69.4	83.9	68.7	81.9
1968	4,700	3,677	8,014	5,603	58.6	45.9	69.9	83.9	65.6	78.2
1967	4,394	3,363	7,512	5,069	58.5	44.8	67.5	86.7	66.3	76.5
1966	4,152	2,949	7,164	4,528	58.0	41.2	63.2	91.7	65.1	71.0
1965	3,991	2,816	6,704	4,277	59.5	42.0	63.8	93.3	65.8	70.6
1964	3,859	2,674	6,497	4,285	59.4	41.2	66.0	90.1	62.4	69.3
1963	3,723	2,368	6,277	4,104	59.3	37.7	65.4	90.7	57.7	63.6
1962	3,601	2,278	6,025	3,799	59.8	37.8	63.1	94.8	60.0	63.3
1961	3,480	2,325	5,880	3,883	59.2	39.5	66.0	89.6	59.9	66.8
1960	3,410	2,372	5,662	3,789	60.2	41.9	66.9	90.0	62.6	69.6
1939	863	327	1,419	639	60.8	23.0	45.0	135.1	51.2	37.9

[1] Worked 35 hours or more a week for 50 to 52 weeks.

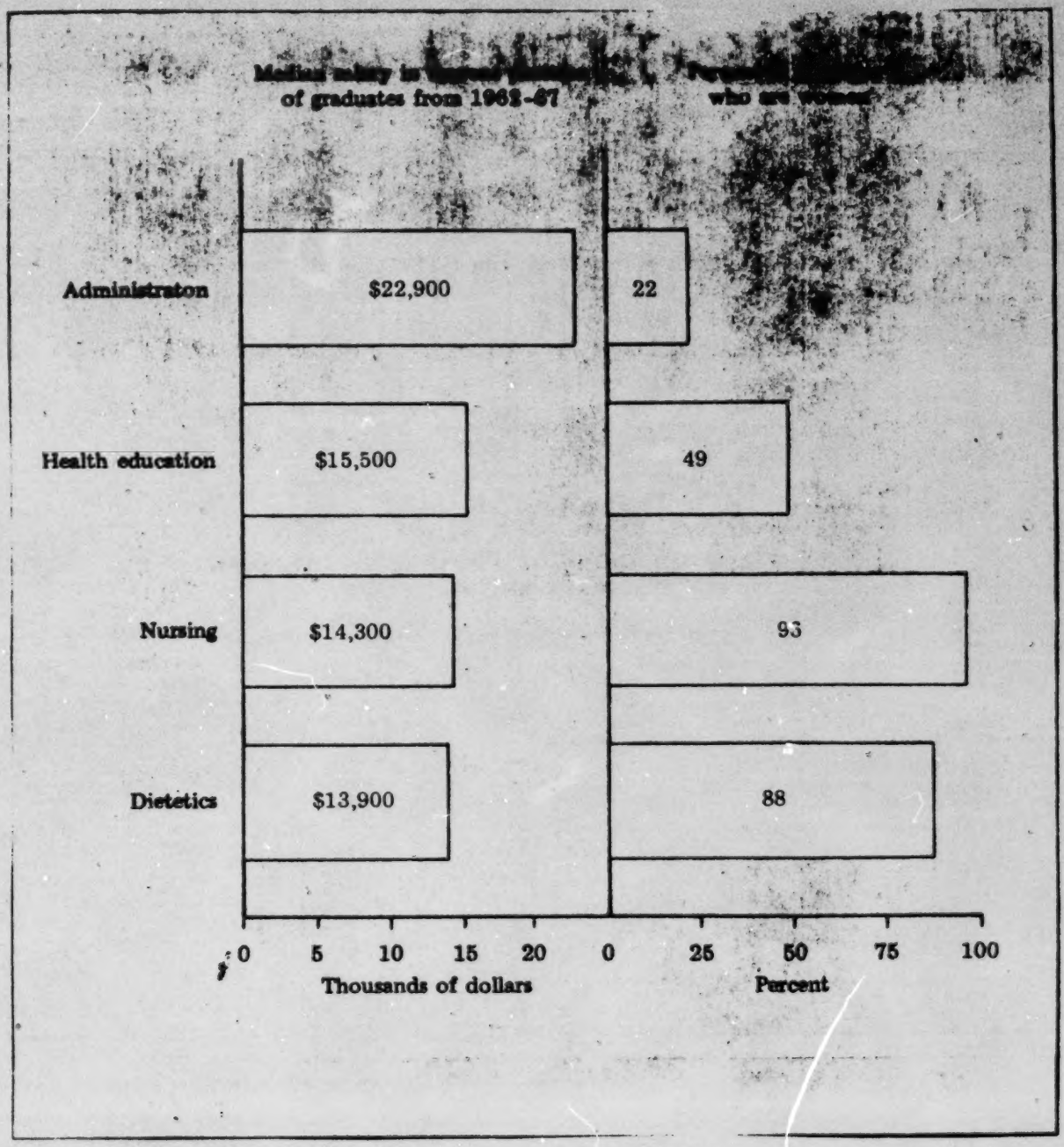
Source: U.S. Department of Commerce, Bureau of the Census: Current Population Reports, P-60, Nos. 90, 85, 80, 75, 66, 60, 53, 51, 47, 43, 41, 39, 37, 27, and P-60, No. 93 (Advance report)

The causes of differences in earnings between men and women and between whites and ethnic minorities are complex. Much of the differential between men's and women's earnings is the result of occupational sex-segregation. In 1960, 81 percent of all women workers were in occupations where women were overrepresented; by the 1970's the concentration was increasing rather than decreasing (Montagna 1977, pp. 126-27). When women constitute a large proportion of workers in an occupation, income tends to be depressed. Income is often severely depressed in fully segregated occupations where men doing nearly identical tasks with a slightly different job title have much higher pay rates as in the case of practical nurses

(female) and orderlies (male). Table 2.4 graphically displays the relationship between earnings and sex composition in related public health fields.

TABLE 2.4

INCOME AND SPECIALIZATION OF PUBLIC HEALTH SCHOOL GRADUATES



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Even within specific health occupations bearing the same title, women generally earn considerably less than men (Brown 1975). This is partly due to the clustering of women and ethnic minorities in the lower-paying specialties and least prestigious positions within employing organizations. While in some cases women may consciously and deliberately select these positions, oftentimes women's relegation to these positions, with their concomitantly lower salaries and fewer promotions, are the result of overt or covert race and/or sex discrimination. Women are also penalized for withdrawal from the labor force. Upon return they must often take lower-level positions than they previously held, reducing their income level, status and opportunities for promotion because they may by this point be regarded as "too old" for their positions---out of "age-grade" step.

In some fields women's earnings may be lower in part because they work fewer hours. In medicine, for example, women typically work fewer hours per week than men (37.4 compared to 46.5 in direct patient care). But their relative earnings are still disproportionate. Table 2.5 shows the differences in income and hours worked in common medical specialties. Using these figures, the average (mean) hourly income for all female physicians (working 48 hours per week) in 1972 was $15.00 compared to $21.00 for men.

TABLE 2.5

INCOME OF AND HOURS WORKED BY PHYSICIANS (M.D.), BY SPECIALTY AND SEX: 1972

Specialty	Average net income from medical practice		Average hours of direct patient care per week	
	Males	Females	Males	Females
All specialties	$47,945	$27,558	46.5	37.4
Anesthesiology	50,898	35,543	48.3	43.5
General (family) practice	41,634	22,339	47.9	39.2
Internal medicine	45,043	23,267	47.5	40.7
Obstetrics and gynecology	53,940	32,864	49.2	37.4
Pediatrics	40,529	23,549	45.8	37.0
Psychiatry	40,433	24,797	40.8	32.1
Radiology	58,891	33,308	41.9	34.9
Surgery	56,377	40,000	48.0	37.8
All other	44,910	27,711	39.7	35.8

Source: B. H. Kehrer, "Professional and Practice Characteristics of Men and Women Physicians," *Profiles of Medical Practice, '74*, American Medical Association, Chicago, 1974, p. 42. Based on sample survey of about 1,400 women and 7,100 men physicians.

Reprinted with permission from: Pennell, Maryland and Shirlene Showell (1975) Women in Health Careers, Status of Women in Health Careers in the United States and other Selected Countries. Washington, D.C.: The American Public Health Association, p. 44.

Ethnic minority women physicians earn even less than white women physicians. According to 1970 U.S. census data, black female physicians earned approximately 55 percent of the net median income of all female physicians; Latinas earned approximately 81 percent (Montagna 1977, pp. 104-05). Some of the difference between white and ethnic minority women's earnings is due to overt and institutionalized racial discrimination. A major factor among professionals is the type of clientele served. Minority professionals may work in lower-status, lower-paying settings (such as community primary care facilities) more often than their white counterparts. Ethnic minority professionals' earnings may also be lower in conventional fee-for-service practices in low-income neighborhoods than in middle and upper-class suburbs or urban centers where fees are not limited by public health insurance rates. In addition, ethnic minorities have had limited access to specialty training, resulting in their clustering in lower-status positions.

WOMEN'S CAREER PATTERNS

Cultural Values and Patterns

Women's career patterns reflect broad trends in female employment in American society. Although there are significant differences in cultural values regarding women's roles between social classes and ethnic groups, most members of American society expect women to assume the wife-mother role. Until recently, women generally expected marriage and childrearing to constitute their primary career. Thus, few women who expected to marry planned lifetime occupational careers, choosing instead to prepare for occupations that they could pursue to "fill in" between leaving school and having a family.

For middle-class white women who have access to education, traditional women's occupations such as nursing, elementary teaching and secretarial work have been viewed as ideal both for "filling in" and falling back on if women did not marry or if divorce or death of a spouse necessitated earning a living. Unlike white women, black women have expected to be both mothers and paid workers (Hart 1977, pp. 10-11). But because black women have had little access to higher education, often have poor academic preparation, perceive their opportunities as limited by racial discrimination and also value their parenting role, they, too, rarely undergo the long training required for professional, technical and managerial careers.

Other major ethnic minority groups' traditional cultural values emphasize women's familial roles over occupational roles. Thus, Hispanic-origin groups traditionally expect women to subordinate their personal interests to the needs of the family. Work outside the home is not generally pursued unless economic necessity forces it (Hart 1977, pp. 11-13). Employment statistics on married women of Spanish-origin (Cuban, Mexican, Puerto Rican and other Spanish speaking countries) reflect this cultural value. Only 42 percent of Spanish-origin wives worked in March 1974 compared to 50 percent of white wives and 63 percent of black wives.

Asians, who constitute less than one percent of the United States population, include members of several diverse ethnic groups with distinct cultural values. These include: Koreans, Indians, Pakistanis, Vietnamese, Indonesians, Thais, Malayans and Pacific peoples including Samoans, Guamanians and native Hawaiians. Chinese, Japanese and Filipino Americans are the most widely known Asians in the United States. A larger percentage of Asian American women (50 percent) work outside the home than do white women (41 percent) or black women (48 percent).

Traditional Asians emphasize loyalty to the family and train children to strict self-control and discipline. Asian women have entered the scientific fields more frequently than women from other ethnic minorities and their levels of educational attainment are similar to nonminority women (Hart 1977, pp. 14-15).

Cultural values among American Indian women vary considerably among the 789 tribes existing today. Some tribes both allow and encourage authoritative behavior on the part of women, while other tribes prefer women not to act conspicuously in decision-making roles (Hart 1977, pp. 13-14). Rural Indian women work outside the home less often than any other group of women. However, with the massive migration from the reservations to urban areas between 1930 and 1970, Indian women now more often pursue paid employment -- mostly in service positions (Women's Bureau 1975, pp. 46-47).

In general, traditional cultural values of ethnic minorities often conflict with dominant white American middle-class values. Whereas the dominant culture is oriented around individual achievement, sustenance of the nuclear family and mother-centered childrearing, many member of ethnic minorities place great emphasis on the extended family and the needs of the larger minority community (Hart 1977). These values affect women's career choices, as do the economic factors that limit opportunities for education and employment.

Paid Employment Patterns

By mid-1977 there were over 40 million women in the civilian labor force (U.S. Department of Labor 1977, p. 1). Since the turn of the century, women have constituted an ever larger proportion of the total labor force (with the exception of a brief period during the early 1950's following World War II). Table 2.6 shows the steady increase of women workers from 1900 to 1974.

TABLE 2.6

WOMEN IN THE CIVILIAN LABOR FORCE: 1900–1974

Year	Women in labor force (1,000's)	Women in labor force as percent of	
		Total labor force	All women of working age
1900	5,114	18.1	20.4
1910	7,889	20.9	25.2
1920	8,430	20.4	23.3
1930	10,679	22.0	24.3
1940	12,845	24.3	25.4
1945	19,270	29.6	35.7
1950	18,412	28.8	33.9
1955	20,584	30.2	35.7
1960	23,272	32.3	37.8
1965	26,232	34.0	39.3
1970	31,560	36.7	43.4
1972	33,320	37.4	43.8
1973	34,510	38.9	44.7
1974	35,825	39.4	46.4

Source: Women's Bureau, *The Economic Role of Women*, Reprinted from *Economic Report of the President, 1973*, U.S. Department of Labor, Washington, D.C., 1973, p. 9.

For 1973 and 1974 data–Bureau of Labor Statistics, *Employment and Earnings* Vol. 21, No. 9, U.S. Department of Labor, Washington, D.C., p. 91.

Reprinted with permission from Pennell, Maryland and Shirlene Showell (1975) Women in Health Careers, Status of Women in Health Careers in the United States and Other Selected Countries. Washington, D.C.: The American Public Health Association, p. 2.

Between 1950 and 1965, middle-aged women entered the labor force in large numbers. Since 1965, however, increases in participation rates have shifted to women between the ages of 25 and 34. The majority of these women (64 percent) are married, live with their husbands and have children at home, all factors which previously reduced women's likelihood of working outside the home (U.S. Department of Labor 1977, p. 1). In 1976, nearly half of all children under 18 had working mothers, and there were 6.4 million children under the age of six whose mothers were in the labor force. Most of these working mothers are employed full time; 75 percent of all women do work full time -- 35 or more hours per week (U.S. Department of Labor 1977, p. 15). Table 2.7 summarizes married women's work patterns.

TABLE 2.7

WORK EXPERIENCE IN 1973 OF MARRIED WOMEN (HUSBAND PRESENT), BY PRESENCE AND AGE OF CHILDREN AND AGE OF HUSBAND, MARCH 1974

(Women 16 years of age and over)

Presence and age of children and age of husband	Percent of civilian noninstitutional population with work experience	Percent distribution of wives' work experience							
		Total	Full time[1]				Part time[2]		
			Total	50 to 52 weeks	27 to 49 weeks	1 to 26 weeks	Total	27 weeks or more	1 to 26 weeks
Total	52.0	100.0	69.0	42.6	13.0	13.4	31.0	18.5	12.5
No children under 18 years old	50.3	100.0	75.1	52.4	12.7	10.0	24.9	16.4	8.5
Husband under 45 years	84.0	100.0	83.4	54.7	16.3	12.4	16.6	9.3	7.2
Husband 45 to 64 years	52.7	100.0	73.1	54.1	10.9	8.1	26.9	19.3	7.6
Husband 65 years and over	20.6	100.0	57.9	38.4	9.2	10.3	42.1	26.2	15.9
Children 6 to 17 years old only	58.9	100.0	62.6	41.5	11.1	10.0	37.4	23.5	13.9
Children 3 to 5 years old, none under 3 years	49.0	100.0	62.7	32.6	13.0	17.0	37.3	20.4	16.9
Children under 3 years old	46.3	100.0	68.1	19.6	18.1	30.4	31.9	12.0	19.9

[1] Worked 35 hours or more a week during a majority of the weeks worked.

[2] Worked less than 35 hours a week during a majority of the weeks worked.

Source: U.S. Department of Labor, Bureau of Labor Statistics: Special Labor Force Report No. 173.

Reprinted from: Women's Bureau (1975) 1975 Handbook on Women Workers. U.S. Department of Labor, Employment Standards Administration. Bulletin 297. Washington, D.C.: Government Printing Office, p. 29.

White women have higher rates of labor force participation than nonwhite women between the ages of 16 and 24; but thereafter, from the age of 25 on, a larger proportion of ethnic minority than white women are employed.* The difference between white and nonwhite women's employment rates is most marked in the 25-34 year age range -- the childbearing years. White women are far more likely than nonwhite women to withdraw from paid employment while their children are young, in large part because white women are more likely to be married and have husbands with incomes adequate to support the family. As indicated in Table 2.8, women's rates of labor force participation are lowest during the childbearing and childrearing years -- ages 25-34 for white women and 16-19 for ethnic minority women who begin their families at an earlier age and who also have high unemployment because of limited education.

* In fact, the rate of employment for ethnic minority women is probably even higher than official figures indicate because minority women often work in family enterprises or on an informal, casual basis for cash; thus, they are not counted as "employed."

TABLE 2.8

LABOR FORCE PARTICIPATION RATES IN THE UNITED STATES, BY AGE AND COLOR, 1971 (IN PERCENT)

WOMEN	WHITE	NONWHITE
16-19	45.5	31.3
20-24	58.0	56.1
25-34	43.6	59.2
35-44	50.2	61.0
45-54	53.7	59.4
55-64	42.5	47.1
65+	9.3	11.5

Reprinted from: U.S. Department of Labor, Bureau of Labor Statistics (1972) Employment and Earnings. Washington, D.C.: U.S. Government Printing Office, January 1972 pp. 118-119.

There are, however, significant differences in women's labor force participation between ethnic groups. While 57.5 percent of all black women with children under six years of age worked in March 1976, only 35.8 percent of Hispanic women and 35.5 percent of white women worked in this life-cycle stage (U.S. Department of Labor 1977, p. 46). Among women with children under 18, married with spouse present, 44.8 percent of all white compared to 41.4 percent of all Spanish-origin and 61.5 percent of all black women were in the labor force (U.S. Department of Labor 1977, p. 46). Although the majority of all women work full time, black women are even more likely (76 percent) than white women (72 percent) to do so in nonagricultural industries (U.S. Department of Labor 1974, p. 8).

Women's employment is by no means trivial to family subsistence. In 1970 the paid-work life expectancy for women at birth was 22.9 years compared to 40.1 for men (U.S. Department of Labor 1977, pp. 61,64). Two thirds of all working women's husbands earned less than $7,000 per year and working women increased their average family income by 25 percent (Montagna 1978, pp. 394-395). In 1973, 13 percent of all families were single-family units headed by females; there was no other wage-earner in two thirds of these families, leaving five million families dependent on these single women's incomes (Montagna 1978, p. 391). One-third of all ethnic minority families are female-headed (U.S Department of Labor 1974, p. 4).

Many ethnic minority women are members of employed poor families and must work. Using the poverty level of $4,275 per year for a four-person family established by the Bureau of Census in 1972, only four percent of the white working force is poor, whereas 14 percent of the ethnic minority work force is classified poor. However, this figure is regarded by many as a serious underestimate of poverty. Using the Bureau of Labor Statistics figure of $7,386 per year for a family of four as the poverty level, the relative proportion of ethnic minority working poor to white working poor increases dramatically, because a larger proportion of ethnic minorities than whites have incomes that fall between the Bureau of Census poverty level and the BLS figure (Montagna 1978, pp. 107-109). Overall, among all families headed by a female full-time worker, 49 percent of all ethnic minority families compared to 26 percent of white families had incomes below the Bureau of Census poverty level (U.S. Department of Labor 1977, p. 8).

Education, Employment and Socioeconomic Status

Women's career patterns are directly related to their socioeconomic status and level of education as well as the ages of children at home. Two interrelated patterns are well-recognized. The higher the status and income level of a woman's husband, the less likely it is that she will remain in the labor force if she has young children at home. For example, in 1974, 36.8 percent of all married women with children under six whose husbands earned under $3,000 per year were employed; 30.1 percent of women married to men earning $10,000 or more were employed. This trend is counteracted by the effect of education. The more education a woman has, the more likely she is to remain in or return to the work force after childbearing, regardless of husband's income.

TABLE 2.9

—Labor Force Participation Rates [1] of Married Women, by Educational Attainment, Presence and Age of Children, and Income of Husband, March 1974

Income of husband and presence and age of children	All wives	Years of school completed: High school: Less than 4 years	High school: 4 years	College: 1 year or more	College: 1-3 years	College: 4 years or more
All income classes	43.0	32.2	46.0	52.9	48.1	58.8
No children under 18 years	43.0	27.5	49.5	59.7	53.2	67.3
Children 6 to 17 years only	51.2	43.9	53.1	56.8	52.7	62.0
Children under 6 years	34.4	30.5	33.5	39.6	37.0	43.0
Under $3,000	35.5	25.3	44.6	61.1	56.2	68.0
No children under 18 years	32.0	22.5	40.8	58.3	53.9	64.8
Children 6 to 17 years only	54.6	44.3	63.4	(1)	(1)	(1)
Children under 6 years	36.8	25.7	40.6	(1)	(1)	(1)
$3,000 to $4,999	35.8	25.3	46.3	54.1	53.5	55.1
No children under 18 years	31.2	20.0	43.6	50.5	47.8	54.5
Children 6 to 17 years only	53.6	44.6	66.8	(1)	(1)	(1)
Children under 6 years	38.8	29.9	41.0	60.6	65.9	(1)
$5,000 to $6,999	43.3	31.3	50.6	59.3	55.8	66.0
No children under 18 years	40.4	25.7	50.5	60.5	56.5	66.7
Children 6 to 17 years only	54.4	42.3	64.0	69.5	70.4	(1)
Children under 6 years	40.6	34.5	41.7	51.5	48.0	62.1
$7,000 to $9,999	49.3	40.1	51.2	61.8	59.3	65.2
No children under 18 years	51.7	39.0	55.7	66.8	62.7	71.7
Children 6 to 17 years only	56.9	46.8	60.7	74.0	73.7	74.3
Children under 6 years	39.8	33.7	39.2	48.9	48.0	50.2
$10,000 and over	43.4	34.8	43.5	49.2	42.7	56.3
No children under 18 years	48.1	31.7	49.7	59.1	50.3	68.0
Children 6 to 17 years only	48.9	42.6	49.4	53.0	47.7	59.5
Children under 6 years	30.1	27.5	28.3	34.0	29.1	39.4

[1] Rate not shown where base is less than 75,000.

Source: U.S. Department of Labor, Bureau of Labor Statistics: Special Labor Force Report No. 173.

Reprinted from: Women's Bureau (1975) 1975 Handbook on Women Workers. U.S. Department of Labor, Employment Standards Administration. Washington, D.C.: Government Printing Office, p. 23.

In short, highly trained women are more likely to work for pay than less educated women when husband's income is held constant. For example, among women with children under six, married to men earning $10,000 or more per year, only 28 percent of those with four years of high school were employed compared to 39.4 percent of those with four or more years of college. This pattern also holds in lower-income families ($3,000 - $4,999/year) where women with children aged 6 to 17 work more often if they have completed high school (66.8 percent) than not (44.6 percent). Table 2.9 (preceding page) summarizes the relationships between husband's income, education and employment.

For women with college or other specialized training, the typical pattern is to work until the birth of the first child. Women with training and work experience in traditional women's health professions such as nursing and social work are more likely to return to work when their children are in school or grown than are women with less training or experience. Generally, the more training a woman has before withdrawing from the labor force for childbearing or child-rearing, the more likely she is to return. Among middle- and upper-middle-class women, the higher the level of education beyond the bachelor's degree, the more likely the woman is to reenter the labor force while her children are still young. Fewer women physicians and academics withdraw from paid employment for more than a few months even for childbearing than do women in most other occupations. For example, in a study of 1,214 women doctorates employed at the time of the survey, 79 percent had never interrupted their careers; 18 percent had interrupted their careers lasting from 11 to 15 months for childbearing, childrearing and/or moving with husbands to a new location (Astin 1969, pp. 58-65).

These patterns of labor force withdrawal are directly related to the earning ability of women with varying levels of education. As the data in Table 2.10 show, the economic advantages of working are much greater for women with advanced training than for those with little education. The direct costs of taking a paid job (expenditures for childcare, transportation, extra clothing, meals out) often leave little real income advantage over homemaking unless a woman earns a substantial income. In fact, for women with children just beginning professional or scientific careers, or employed in low-paying positions, working may actually result in deficit spending. Women established in their fields before having children are in a less precarious position, as are women whose children are old enough to care for themselves.

TABLE 2.10

MEDIAN INCOME OF YEAR-ROUND FULL-TIME WORKERS BY EDUCATIONAL ATTAINMENT: 1971

Years of schooling	Male income	Female income	Percent female of male income
Less than 8 years	$6,310	$3,946	62.5
8	7,838	4,440	56.7
9-11	8,945	4,889	54.7
12 (high school)	9,996	5,808	58.1
College - 1 to 3 years	11,701	6,815	58.2
College - 4 years or more	14,351	9,162	63.8

Source: Bureau of the Census, *WE the American Women*, No. 4 in a series of reports from the 1970 Census, U.S. Department of Commerce, Washington, D.C., March 1973.

Reprinted with permission from: Pennell, Maryland and Shirlene Showell (1975) Women in Health Careers, Status of Women in Health Careers in the United States and Other Selected Countries. Washington, D.C.: The American Public Health Association, p. 18.

Ethnicity and Education

Ethnic minority women are narrowing the gap in education between themselves and their white counterparts. For example, in 1966, for women 18 years and older the median number of years of education completed was 11.2 for minority women compared to 12.4 years for white women. In 1966 the median years completed were 12.4 for minorities compared to 12.6 for whites (aged 16 years and older). Today, most minority women workers are high school graduates. In 1976, 65 percent of all minority women compared to 76 percent of all white women were high school graduates; 12 percent of minority compared to 14 percent of white women were college graduates (Woman's Bureau 1977, p. 11).

There are significant differences in educational attainment, however, among various ethnic minorities in the United States. Despite black women's dramatic increases in high school graduation (up to 75 percent in 1974 compared to 85 percent for white women) only 7.6 percent of all black women have receive baccalaureate degrees. Puerto Rican women complete an average of 9.5 years of school. Only 25 percent graduate from high school, 3 percent graduate from college. Mexican-American women have a similar pattern completing an average of seven years of school; 23 percent are high school graduates and 2 percent are college graduates (Hart 1977, p. 11).

American Indian women, who have access to free education through the Bureau of Indian Affairs, have different rates of school completion in reservation and urban non-reservation settings. Only 6.2 percent of Southwest Indian women (largely on reservations) have completed eight years or more of school. The 1970 census data indicate, however, that nationwide American Indian women complete a median 10.5 years; slightly over one-third (34.6 percent) graduate from high school (Hart 1977, p. 13).

Asian-American women's school completion rates are comparable to that of whites. Three quarters (75 percent) of all Japanese-Americans complete high school and 23 percent of all Filipino and 58 percent of all Chinese-American women between the ages of 18 and 24 are enrolled in college (Hart 1977, pp. 14-15).

Rates of school completion are related to many factors: cultural values surrounding education, familial encouragement, availability of educational institutions and family income relative to family size and consumption patterns. There is growing evidence that levels of individual achievement motivation or aspirations do not account for educational attainment to the degree that is sometimes asserted.

A recent University of California survey of 1975 high school students showed that although blacks have relatively low levels of educational attainment, their aspirations were higher than those of their white counterparts; Chicanos had lower levels of educational aspiration than either blacks or whites. Regardless of aspiration levels, blacks and Chicanos were eligible for enrollment in the University of California (UC) and California State College and University System (CSCU) far less frequently than their white counterparts. The economic status of students' families is directly correlated with college and university eligibility status. Students from upper-income families are far more likely to be UC eligible (26 percent eligible from families earning $25,000 or more per year) than are those from lower-income families (only 9 percent eligible from $6,000-$11,999 per year families. "Beyond High School Graduation: Who Goes to College?" 1978, p. 20).

Ethnic minority students in upper-income categories were far more likely to be UC eligible than those from low-income families, but even within given income groups minority students consistently achieved UC eligibility at lower rates than white students. Parental education also correlated highly with UC

eligibility. Among students with one or more parents with an advanced degree, over one third (37 percent) were UC eligible, whereas only 6 percent of all students whose parents had not completed high school were eligible ("Beyond High School: Who Goes to College?" 1978, pp. 22-24).

Minority students pursuing college or advanced education often do so on a part-time basis. Many of these students are also often parents, placing familial demands on them that may slow academic progress. For example, 56 percent of the black females studied by the Ford Foundation received their Ph.D.'s at the age of 35 or older. While the median number of years after college graduation to receive the Ph.D. is 7.5 years for those in the humanities and social sciences and five years in the natural sciences, the median years for blacks to complete degrees was 13 years; over 70 percent required ten years or more (Bryant 1970, pp. 4-5).

CHILDCARE

Women with children under six must be able to locate and afford full day childcare services if they are to work outside the homes; mothers with older children can make a wider range of arrangements for after-school supervision. Although there is little systematic national information on how working mothers provide care for their children, available data indicate that most children are cared for in private homes -- their own or someone else's ---- and care is most often provided by relatives rather than unrelated paid workers. Over 45 percent of all children under 14 years of age are cared for in their own homes. Relatively few young children are cared for in group settings such as nursery schools, day-care centers or similar institutions (Women's Bureau 1975, pp. 33-34).

A 1970 survey supported by the Office of Economic Opportunity revealed that 55 percent of all children cared for full time, out of their own homes, are cared for in family day-care homes where an adult regularly cares for a group of children. The remaining 45 percent attend childcare centers. Although a relatively small percentage of children are cared for in centers, research indicates that more of the mothers with children in such centers are satisfied with their arrangement than are mothers whose children are cared for at home by siblings or nonrelatives or in family day-care homes (Roby 1975a, pp. 4-5).

While mothers with children have rapidly entered the labor force in the past decade, there has not been a concomitant increase in either public or private childcare facilities. The childcare shortage became acute between 1965 and 1971 when the number of working mothers with children under six rose from 3.7 million to 4.6 million while the number of full-time household workers decreased by 200,000. By the early 1970's, federally funded day-care programs provided for less than 5 percent of all low-income families in need and all licensed nonprofit and proprietary day-care centers had an enrollment capacity of only around 625,000 for both preschool and school-age children. Many of the centers operated only during limited hours, leaving parents inadequate time to get to and from jobs (Roby 1975a, p. 6).

Childcare programs and policies still seriously fall behind the demand for services, although more community organizations, public agencies and employers now recognize the need (Roby 1975; Women's Bureau 1975, pp. 35-41). The quality of care varies and how much federal and state government, parents, public school districts, teachers and administrators will control the quality and quantity of services and determine costs are major social policy issues under debate (Joffe 1977; Roby 1975a).

The federal government now recognizes the importance of classifying childcare expenses as tax deductible expenses, for these expenditures are essential for women to work to support their families. The Revenue Act of 1971 greatly liberalized allowable deductions on a sliding-scale basis, providing low-income mothers substantial federal tax savings but upper-income working mothers little or no benefit. Individual states vary on allowable childcare deductions; many now use the federal regulations (Women's Bureau 1975, pp. 38-39).

Fluctuations in the Job Market

Employment opportunity is a crucial factor in whether or not women work in the professions, the sciences or other health occupations. During periods of labor shortage women are mobilized into paid employment; throughout World War II, both financial and ideological support were offered to women to work outside the home. However, during periods of high unemployment, women and minorities find employment opportunities severely restricted; neither ideological nor material support may be offered. Navarro (1975, p. 5) argues that both the Nixon and Ford administrations were unreceptive to developing day-care centers in large degree because of fear of increasing the unemployment rate.

Thus women have traditionally functioned as a reserve labor force to be called upon in times of national need, and retired to the home once the crisis is passed. Little effort is devoted to ensuring full use of women workers' capabilities, in part because their presence as a reserve labor force provides great flexibility to capitalist industries that must be able to expand or contract the labor force to maximize profits. Labor market theorists point out that in recent years a growing proportion of women and minorities both enter and remain in a secondary labor force that provides less job security, fewer opportunities for advancement and lower incomes than primary labor force positions. In short, women and minorities still tend to hold marginal positions compared to white males (Montagna 1977).

VOLUNTEER WORK PATTERNS

When paid employment is unavailable, many women who would prefer to work for pay turn to organized volunteerism as a way to maintain skills, make contacts that may help them locate a paid position or simply provide opportunities for active involvement outside the home. For other women, volunteerism may be used for a variety of purposes: as an opportunity for professional growth and development, as a means to develop self-confidence, get recognition, grow personally, satisfy needs for sociability, get out of the house and away from the family, give them something to do to keep busy or fill time. Women who volunteer also find that it provides opportunities to learn interesting things, meet interesting people and travel. Some especially find satisfaction in helping others or accomplishing something that they believe in or feel is a worthwhile endeavor (Daniels, Joslyn and Ruzek 1975).

Patterns of volunteerism, like paid employment patterns, reflect the social stratification system in the larger society. Fifty-nine percent of all organized volunteer activities are conducted by women. In the health industry, most women who volunteer are between the ages of 20 and 59, and provide direct services to assist patients and hospital staff ("Americans Volunteer" 1974, p. 33). Among women who volunteer through formal channels, 37 percent have an annual family income of $20,000 or more ("Americans Volunteer" 1974, p. 7).

Women from high income families not only volunteer in agencies more often than do low-income women, but their voluntary activities and careers are different as well. Upper-class and upper-middle-class women sometimes pursue lifelong volunteer careers, typically beginning careers at marriage. Activities may be somewhat restricted during the early years of childbearing and childrearing. However, the availability of domestic help and the flexibility of volunteer activities allows women to combine their volunteer work with childrearing and homemaking. As children grow older, some women pursue volunteer careers on a full-time basis, often moving into high-level,policy-making and fund-raising activities. In many upper-income families, volunteerism is expected of women; the family's social prestige is maintained or advanced by women's voluntary work (Daniels, Joslyn and Ruzek 1975).

Middle-class women with professional training sometimes work as volunteers when their children are young. During this period volunteerism provides an opportunity to remain professionally active on a schedule less demanding than that required for full or even regular part-time employment. Often these women exchange childcare services with other mothers or pay for childcare services. Other middle-class women (with less training or professional commitment) begin volunteer work when their children enter school. For some, volunteerism becomes a career, whereas for others it provides a transition from being at home to paid employment (Daniels, Joslyn and Ruzek 1975).

For lower-income women, voluntary service to others is most often offered through the informal networks of kin and community. Organized volunteer work is less often pursued, partly because lower-middle-class and working-class women cannot afford paid childcare or housekeeping help to volunteer on a regular basis. If they work outside the home it is more often in paid employment. Although a significant proportion of the population with an annual income of $4,000 or less engages in volunteer activities (12 percent),it is generally more sporadic than the regular type of volunteerism upper-income women pursue. Those who do volunteer regularly often begin later in life when family obligations are reduced, the cost of childcare is no longer a barrier, and the husband provides enough income for the woman to remain out of the paid labor force (Daniels, Joslyn and Ruzek 1975).

SEX ROLES AND OCCUPATIONAL CAREERS

Socialization

People begin to develop behavioral traits, skills and social expectations regarded as sex-appropriate at an early age. Many of these factors influence women's ultimate occupational decisions. While sex role socialization varies somewhat between ethnic groups and social classes, the socialization of boys and girls is distinct within each group. Sex role differences are most pronounced in the lowest socioeconomic groups and among ethnic minority groups and least pronounced in the white native born American upper-classes. Regardless of social class or ethnic group, girls tend to be channeled into traditionally female occupational roles whereas boys are provided with a wider array of potential occupational roles and specific occupations. (See for example, Gornick and Moran 1971; Hacker 1975; Klemmack 1973; Lipman-Blumen 1976; Psathas 1968; Rubin 1977; Weitzman 1975.)

How does this occur? In children's picture books, there are few occupational role models for girls outside of mother. In elementary textbooks, occupational sex stereotyping is pronounced. Adult women are almost always shown as mothers, teachers, nurses or secretaries (Weitzman 1975). Counselors typically

channel women into "women's fields" (Gardner 1971; Saario, Jacklin and Tittle 1973). Schools rarely encourage girls to develop math and science skills, required for entry to most graduate programs in the health professions and sciences. By the time women are in college, they generally feel it is too late to acquire these skills. Some scholars believe that training women to expect to do poorly in math is one of the most serious barriers to women's educational and career development (Sells 1975).

The socialization process reflects general social expectations regarding women's roles. The expectations by and large work against women entering any but traditional female occupations or professions. Significantly among women scientists, many had mothers who were born or educated in Europe where cultural expectations for upper- and middle-class women are quite different than in the United States; women scientists and administrators are drawn disproportionately from immigrant families in which the mother works. Women scientists and physicians also report having been encouraged by their fathers to pursue serious careers (Astin 1969; Graham 1970; Kundsin 1974).

Personality Characteristics

The socialization process not only limits woman's aspiration and expectations to pursue careers in the sciences, professions and managerial fields, but fosters personality traits and characteristics regarded as incongruous to high-level occupational achievement. Core attributes found in most professional roles are regarded as "masculine characteristics:" persistence and drive, personal dedication, aggressiveness, emotional detachment and sexless matter-of-factness. In American society the whole spectrum of behavioral traits such as passivity, aggressiveness and practicality, found in all persons, are sexualized and asserted to correlate with masculinity or femininity. Because of the dualistic view of attributes (male and female) and the value component attached (superior and inferior), society tends to belittle and reject a whole realm of personality that has been culturally associated with women. Since male and female personality traits or characteristics have been regarded as mutually exclusive, most women also have felt forced to choose between continuing to behave in "feminine" ways or adopting the "masculine" behavior necessary for professional success. (Bardwich and Douvan 1972; Broverman et al. 1970; Epstein 1971; White 1970).

Women have not always conformed to the societal proscription against aggression, persistence and ambition. Paradoxically, the cultural equation of feminity with weakness often leads women to believe that occupational success hinges on asserting valued male characteristics exclusively, whereas, in reality, many "feminine" qualities such as empathy and ability to experience vicarious success through the achievements of others, are assets in high-level positions. The women's movement and scholars' growing interest in androgyny, the healthy combination of male and female characteristics in the individual, have provided support for women attempting to integrate traditionally female characteristics with professional roles and behaviors (White 1975; Heilbroner 1976). However, women who pursue serious careers, particularly in male-dominated occupations, still face considerable social-psychological strain (Campbell 1973; Epstein 1971; Hall 1972; Howell 1976; Kanter 1977; Rossi and Calderwood 1973). Women are especially concerned that pursuing high-level careers will be destructive to their personal relationships, and that they may have to sacrifice marriage and parenthood to succeed professionally (Bourne and Wikler 1978).

Women show considerable anxiety or ambivalence over succeeding in the occupational world. Horner's (1972) study of women's fear of success in competitive situations suggests that women fear rejection and believe that social stigma will result from success in traditionally male areas of endeavor such as medicine

or other male-dominated occupations; fear of success is particularly pronounced among extremely bright, competent women. Some scholars take issue with Horner's research and suggest that the motive to achieve or avoid success is extremely complex for both men and women. Further research is needed to substantiate the claim that women's fear of success in fact has deleterious consequences for their actual achievement (See Fleming 1977; Tresemer 1976, 1977).

Kanter's (1977) recent study of high-level women in corporations also reveals women's personal ambivalence over being exceptional, and the strains associated with being a token or small minority. Academic health professionals participating in a conference, "Leadership and Authority in the Health Professions," voiced similar concerns (Proceedings of a Conference on Women's Leadership and Authority in the Health Professions, 1977).

Family Roles and Obligations

Regardless of women's educational or occupational aspirations or levels of achievement, the social organization of the family poses barriers to women's pursuit of high-level occupational careers. While, as already noted, women often work outside the home, women's primary responsibility has been defined as childbearing and rearing children. These familial roles are significant activities for most women.

As of 1972, Bureau of Census projections for American women born between 1948-1954 indicate that only one in 20 will not marry, and of those marrying, only 3.6 percent expect to remain childless and 9.8 percent plan only one child; 87.6 percent plan two or more children (Wilson, Bolt and Larsen 1975, p. 9). Thus, most women will spend at least some years bearing and rearing children.

Despite the idealization of motherhood and the real rewards of childrearing and homemaking, the domestic role is afforded little prestige or status by either men or women in American society. The status discrepancy between husband and wife is especially pronounced in white upper- and upper-middle-class families where both spouses are typically well-educated. The ideological view that "women's place is in the home" often leads women to expect that this will be their major life occupation even though they might prefer other activities. Women who do not accept this role definition, and chose to pursue serious occupational careers, often face considerable social disapproval as well as many major and minor difficulties juggling home and career.

Upwardly mobile black women expect to combine paid work with marriage and childrearing because for minorities, who earn substantially less than whites, the combined income is needed to attain stable working-class or middle-class status. In 1976, for example, the median income of black families with both husbands and wives in the labor force was only 9 percent higher than the median income of white families in which only the husband was employed (U.S. Department of Labor 1977, p. 53).

Both white and ethnic minority women who work outside the home have heavy work weeks. In addition to their paid work, full-time women workers spend an average of 40-50 hours each week on household tasks, bringing their overall workweek to 75-90 hours. For women in lower-paid occupations, there is little or no time for rest or recreation. Although women in high-status occupations often have paid domestic help, many tasks cannot be delegated to others. Thus, women scientists and professionals with young children rarely have evenings or weekends free for reading and writing as do their male colleagues, placing such women in a disadvantageous position in terms of career advancement (Bourne and Wikler 1978; Hunt and Hunt 1977; Pleck 1977). When men attempt to take on additional family

responsibilities in dual-career families, they too, find themselves at a competitive disadvantage (Hunt and Hunt 1977; Pieck 1977).

When working women hire others to perform much or even all domestic work, they must undertake the managerial tasks of recruiting, hiring, supervision, paying and firing household employees. Women who rely on relatives for domestic help, as is common in the extended black family, often become involved in delicate interpersonal relationships and feel the need to repay obligations in a vareity of ways, all time-consuming. Even in households where husbands share domestic chores, the wife generally retains the responsibility for household maintenance and caring for children. In the growing number of single-parent families, individual women (sometimes with the help of extended families) carry full responsibility for all aspects of family life (Weiss, forthcoming).

In addition to managing childcare and domestic tasks, women workers with children must find ways to manage children's illnesses, school conferences and meetings and other activities. Women who are part of an extended kinship network, or a social network of other working mothers, often can work out cooperative means for solving these problems, whereas women who are isolated either socially or geographically find it more difficult to make adequate arrangements.

Women in the sciences and professions who marry men with similarly high occupational statuses (the typical pattern for white, but not necessarily for black women) may be expected to entertain or travel with them. In such marriages, husbands and wives must negotiate the extent and type of participation in social activities agreeable to both (Hunt and Hunt 1977).

Suburban housing patterns limit women's participation in paid employment several ways. Employment in suburban areas is limited and household services and domestic help are less available than in large cities. Children must be driven to and from activities because public transportation is rarely available (Rossi 1964).

Geographical mobility is often a problem. When husbands are transferred or offered a position in another location, women usually move with them, giving up their own positions and practices. In some fields, such as high-level scientific research, the job market is national or international; geographical mobility is crucial to obtaining good positions. Married career women still rarely make such moves unless their husbands can maintain or advance their own careers by moving.

The entire array of family responsibilities coupled with the demands of paid employment make it difficult for women, especially those with young children, to pursue careers requiring long hours and a strong commitment. Given the difficulties, it is not surprising that many women revoke their career commitments, or reduce them substantially, while their children are young.

Societal reaction to women who leave paid employment to take on the wife-mother role on a full-time basis varies by social class and ethnic group. Middle- and upper-class white women who withdraw from employment to raise families are often applauded, particularly if they are part of a social circle in which wives rarely work outside the home as is common in many suburban communities. Unlike their male counterparts who are regarded as "failures" for dropping out, inactive professional women are afforded high status in community organizations and are sought-after to assume leadership positions in voluntary associations (Epstein 1971). Working-class women who can afford to stay at home may be afforded status for having a husband who is such a stable provider.

For black women, revoking the decision to pursue a career has different consequences. Her status may decline in the black community because she is perceived as neglecting to pursue avenues open to her by virtue of her high level of education, an avenue to mobility that is a scarce resource. Rather than focusing on the sacrifices a woman's family must endure because of her working, black families

focus on the advantages professional women provide for both their immediate and extended families and the larger minority community. For black women with little education, there is little "choice" except between working despite hardships or going on public assistance.

THE STRUCTURE OF SCIENCE AND PROFESSIONS

There are structural features of the established male-dominated sciences and professions that make it particularly difficult for women's full participation at high levels -- even if a woman is able to manage her family roles and/or remains single and childless. Women who enter male-dominated professions are often labeled negatively. As "deviants," they evoke ambiguous and ambivalent responses from colleagues and clients who perceive them as having status characteristics inimical to their occupational roles. Ethnic minority women have two status characteristics (race and sex) separating them from their white male counterparts whose image is associated with powerful, prestigious occupational roles.

Both white and ethnic minority women's deviant status is muted to a degree when they work in settings defined as particularly appropriate for persons with their characteristics. Thus, for example, a Chicana pediatrician practicing in a Spanish-speaking community clinic would seem less "out of place" than a black female neurosurgeon on an eastern Ivy League university faculty or a white female urologist with an office in a black neighborhood.

In general, women are expected to choose careers in which they will be able to meet their familial responsibilities without disrupting the world of work. Thus, in medicine, specialties and practice settings that tolerate limited commitment are regarded as appropriate for women. For example, women physicians are often encouraged to enter pediatrics, public health, psychiatry and anesthesiology, although individual women might prefer surgery, orthopedics or obstetrics and gynecology -- all specialties with high status and high income. Overall, women are most welcome, or at least best tolerated, in the less prestigious specialties within each profession. Even within these lower-status specialties, women have lower earnings than men (Astin 1967; Bourne and Wikler 1978; Pennell and Showell 1975; Epstein 1971; Theodore 1971).

In recent years social scientists have identified and analyzed structural features of traditionally male high-status occupations that pose barriers to women's entry and full participation. (See especially Daniels 1977; Epstein 1971; Kanter 1977; Shapiro, Haseltine and Rowe 1978; White 1970.) While these occupations are currently organized in ways that hinder women, many analysts suggest that they need not be, but can and must, be changed to facilitate women's access to occupational opportunities. The following aspects of contemporary professional careers work against women's entry and advancement.

Training

The long training period and hours of training pose serious barriers to women with children or those planning children. Women entering medicine must spend four years beyond the bachelor's degree in medical school, and additional years in internship and residency. Women scientists require on an average five to eight years to complete the Ph.D. Other traditionally male health professions require anywhere from two to four years of post-baccalaureate education. In addition to the length of training, schedules in research laboratories and internships in the health professions often require long shifts, sometimes twenty-four-hour-a-day stretches, making it difficult for women to fulfill family obligations. Graduate training also typically is undertaken during the mid to late twenties, the years in which women usually plan to have children (Epstein 1971).

Sponsorship

The sponsorship system in the sciences and professions makes it difficult for women to become established. Male professors are often hesitant to sponsor women students because they believe that women are less likely to do well and thereby unlikely to add to their own reputations. For young professionals, access to role models, mentors and sponsors is crucial, for it is through these personal, informal relationships that much of the important learning occurs. The sponsorship system also facilitates the new professionals' employment opportunities and enhances their professional reputations (Epstein 1971; Shapiro, Haseltine and Rowe 1978).

Informal Networks

Women often feel excluded from the informal networks of friendship, colleagueship and referrals important in the sciences, professions and administration. For many women, simply finding someone to have lunch with or discuss work is difficult. Women scientists often find themselves outside the informal networks that provide opportunities for exchanging ideas, developing a professional reputation leading to invitations to present papers or publish, and validate them as competent professionals. Women health professionals excluded from informal networks have limited opportunities to advance within professional associations and may have fewer referrals that are needed to build practices. Women administrators may not develop personal alliances that are useful when attempting to ease tense situations or circumvent standard channels for gettings things done.

While exclusion is sometimes blatantly discriminatory, more often women in high-status positions experience subtler and less conscious, or intentional, forms of exclusion. Kanter (1977) documents that dominant group behavior toward token women takes several forms: exaggerating the dominant group's culture by emphasizing characteristics and behavior regarded as masculine such as making sexual innuendos; commenting on the woman's presence or difference; not criticizing a woman when a man would be criticized; withholding secrets; testing or assessing loyalty.

Women have also tended to exclude themselves (Epstein 1971; White 1970). Often, however, full acceptance seems either unrealistic, uncomfortable or inappropriate to meet women's personal and/or professional needs. To meet these needs many women form their own women's caucuses or professional associations. Today, there are women's organizations incorporated into or adjunctive to most major professional associations (Oltman 1971).

Minority women have the dilemma of whether to join and actively participate in these predominantely white women's organizations or to devote their efforts to similar minority organizations for both men and women. Many minority women see their special needs better served by the minority organizations or feel that the improvement of opportunities for minority men are more salient issues than those pursued by women's groups.

Women's professional groups with their informal networks do offer opportunities for women to establish themselves professionally, but not without some costs. Men may regard such involvement as evidence that women do not wish to participate in mainstream activities, minority men may criticize minority women for aligning themselves with a relatively advantaged group competing for scarce resources, and women may find that participating in these informal networks is so time-consuming that they have inadequate time to devote to building their mainstream networks (Daniels 1977).

Women often face accepting isolation or involving themselves in alternative, informal network systems that may further reduce their acceptance by male peers. Others

may attempt to prove their loyalty to dominants by defining themselves as exceptions, thereby alienating themselves from their own social category. Overall, the dilemma for women occupying traditionally male work roles is how to reconcile their differentness and still receive validation of their competence (Kanter 1977).

Professional Contributions and Prestige

There is considerable prejudice against women because it is claimed that they make relatively fewer contributions to their professions than men. In fact, over a lifetime, compared to men women do work fewer hours, win fewer awards, and what they produce is often less valued and less visible. However, women often choose or are channeled into less prestigious positions and have fewer opportunities for advancement than do their male colleagues (Epstein 1971). Women health professionals often carry considerable responsibility for primary care of patients. Ethnic minority women often are trained in and affiliate with minority institutions where patient loads are especially high and access to mainstream professional activities and associations is limited. Women scientists often have heavier teaching loads than do their male colleagues in academic institutions. Heavy teaching and patient care responsibilities reduce opportunities for research, publishing and participation in professional activities beyond the work setting, all endeavors that bring recognition and prestige.

The Obsolescence of Scientific and Technical Knowledge

Research and technology in the basic sciences and the health professions develop and change so rapidly that career interruptions place women at a severe disadvantage at all but the lowest levels in the health hierarchy. After an absence from paid employment, women are often relegated to marginal or low-level positions within their professions or must find employment outside their former specialties. As practicing professionals, it is often difficult to keep abreast of new developments, but for women with family responsibilities it is an acute problem.

The net effect of these structural features of traditionally male-dominated sciences and professions has been to discourage women from entering or lead those who do enter to follow career patterns significantly different than those of men. These "slowly upwardly spiraling careers," as White (1970) terms them, are preferred by many women. They reflect a more even balance between family and occupation than those typically pursued by men. Increasingly, however, a larger number of women place greater commitment to career than to family, while more men are beginning to strike a more even balance between their work and their family life. Such a readjustment in men's as well as women's career patterns is necessary for women to achieve parity with men in the occupational world, because the worlds of home and work are inextricably linked (Safilios-Rothschild 1976; Pleck 1977).

CAREER PATTERNS AND LADDERS IN HEALTH OCCUPATIONS AND PROFESSIONS

Keeping in mind the broad social and psychological factors affecting women's career patterns, we turn now to examine basic career patterns and ladders in health science research and teaching, predominantly male and female professions, health administration and allied health occupations.

Women contemplating careers in any of these fields should take courses in math and science in junior high and high school. Often, it is deficiencies in these areas that later prevent women from entering many occupations. Unfortunately,

many parents and school counselors still view boys as having greater aptitude in these areas than girls, and give girls less encouragement to study these subjects. Because they are so important, demonstration projects have been funded to give special instruction to girls in math and science. For example, in Berkeley, California, girls between the ages of 6 and 14 attend courses at the Lawrence Hall of Science geared to capture their interest and dispell their fears and anxieties about their competence in these "male subjects." Similar model programs exist in other communities as well (Ernest 1976).

For women entering college with inadequate preparation in math, there are often remedial courses available on campus or through local adult education programs. Many women graduate from liberal arts college programs without learning basic math and science skills, and they, too, can benefit from such continuing education programs to prepare themselves for advanced training in many health fields. Women mathematicians and scientists involved in these programs report that women who enter fearful of failure quickly catch on and enjoy acquiring skills they previously believed they were incapable of developing (Ernest 1976; Tobias 1978).

To become a research scientist, the Ph.D. is required for almost all positions and is crucial for career advancement. Some women, hoping to become scientists, are disillusioned discovering that a B.S. or M.S. is seldom adequate preparation except for research assistant positions in academic institutions. However, many women find great satisfaction in these lower-level positions, and discover that compared to jobs they can hold with a non-science bachelor's or master's degree, holding a science degree offers many more opportunities for employment at good salaries. In private industry, both bachelor's and master's degree holders can develop good careers. And, with a science degree, teaching at the junior high school, high school, junior college or college level is possible, the level depending on the highest degree received and local supply and demand for teachers. Women with bachelor's or master's degrees in science can also undertake advanced training in a health profession. Some of the professional fields such as medical technology require a year or less training beyond the bachelor's degree. Careers in research are discussed in Chapter 3. Careers in professions that build on science backgrounds are covered in Chapter 4.

The health and medical professions span a wide variety of occupations ranging from medicine, requiring five or more years of training beyond the baccalaureate degree, to nursing, usually requiring only three to four years of post-secondary education. Typically, women have chosen occupations requiring two or less years of graduate education beyond college. In recent years, however, women have entered the traditionally male fields such as medicine, podiatric medicine, pharmacy and optometry in growing numbers, even though these occupations require long training.

Considerable expansion in the allied medical field has occurred at the level of the paraprofessions -- fields that require less than a college education. Women enter these occupations in large numbers in part because the length of training is relatively short and can be obtained in community colleges tuition-free. For reentry women hoping to find work quickly, these occupations offer many opportunities for employment.

Health administration and public health careers are extremely varied as indicated in Chapter 5. For reentry women with bachelor's degrees in any of the natural or social sciences or humanities who can undertake one to two years of graduate work, public health careers present many opportunities for employment and advancement. Unlike many graduate programs in the health professions and sciences, schools of public health are receptive to accepting older students.

In Chapters 3 through 5, each of the major types of health occupations are described along with educational requirements, licensure requirements, patterns of job placement and career mobility, types of employment or practice, and major occupational associations where one can get additional information. The effects of discontinuous career patterns, late entry, work schedules and need for geographical stability or mobility -- all issues of concern to women -- are discussed. Information on how to set career goals and action plans, select a training program and advance is covered in Chapter 6.

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CHAPTER 3: CAREERS IN THE HEALTH SCIENCES

Gleoria Bradley-Sapp

GENERAL CAREER PATTERNS AND REQUIREMENTS

Description

The health sciences are disciplines devoted to furthering the knowledge of fundamental life processes through scientific investigation. These disciplines provide the empirical scientific knowledge on which clinical health professions such as medicine, nursing, dentistry and psychology are based.

Life scientists (e.g., anatomists, physiologists, biochemists) observe and classify facts and develop generalizations and theories about life processes. The level of study may be a part of the organism (e.g., the cell) or the whole organism. Social and behavioral scientists (e.g., psychologists, medical sociologists and anthropologists) focus on personal and interpersonal life processes, social relations and the structure of social institutions affecting the health of individuals and groups. Research is focused on the individual, interpersonal relations, group relations and larger social systems including health care delivery institutions and the politics of health care. Public health scientists (e.g., epidemiologists, biostatisticians, demographers) investigate health and disease patterns and mortality trends for specified populations including, for example, ethnic groups, residents of geographical areas (cities, counties, regions, nations) and occupational groups.

Education

Status within the health sciences is strongly related to level of education and prominence in scientific circles. Health scientists hold baccalaureate or higher degrees. Graduate training is required for all but the lowest-level research assistant positions. Scientists with doctoral degrees holding professorships and research directorships in universities have the greatest independence and responsibility for research. Other doctoral level scientists work primarily in research or teach at the college level. Scientists with master's or bachelor's degrees hold lower-level research positions and/or teach in secondary schools or junior colleges. Few opportunities for advancement are available without an advanced degree.

Undergraduates undergo training in the broad areas of biology, social-behavioral sciences or mathematics; statistics, biology and chemistry are subjects that students often fail to take early in their educational careers and must later make up to pursue college-level or graduate study in the sciences. Graduate training is more focused on specialized disciplines such as biochemistry, anatomy, medical sociology or anthropology at the doctoral and postdoctoral level. A high degree of specialization is required. For example, an undergraduate general biological sciences major might undertake graduate work in physiology. By the time she received the doctorate, she might be a specialist in a narrow area such as renal physiology.

Two years of graduate study are required for the master's degree in most disciplines. A minimum of two years of additional training beyond the master's is required for the Ph.D. which is awarded only on completion of an independent research project. The median number of years taken to complete the doctorate is 7.3 beyond the bachelor's degree (Graduate Science Education 1974, p.3).

Social scientists take seven to eight years, while life scientists usually take four to five years to complete the doctorate. The length of doctoral training is determined by the area of specialization, the rigor of the individual graduate program and the student's ability to devote full time to training. In many disciplines, students hold part-time research and/or teaching positions while completing doctoral work. This often accelerates progress toward completing the degree, because this type of employment prepares students for qualifying examinations and/or provides opportunities to conduct doctoral research.

Educational Expenses

Training costs vary between institutions. At public colleges and universities, tuition may be less than $200 per year for state residents, but as high as $3,000 for out of state students. Tuition at private universities can exceed $5,000 per year. Room, board and incidental expenses average an additional $3,000 or more per year.

Employment and Mobility

Health sciences careers include basic research, applied research and teaching. Some health scientists provide technical assistance and consultation to practicing health professionals and/or become science administrators. Life scientists and social and behavioral scientists (at the master's and doctoral levels) are employed primarily in postsecondary institutions. Government agencies and private industry (e.g., drug and medical technology companies) are the next largest employers. Social and behavioral scientists work in hospitals, clinics, social welfare and private research consulting firms. Public health scientists are often employed by local, state and federal public health departments. Nonprofit organizations and the military employ a small number of health scientists.

Geographical mobility is important at the highest levels of the sciences where recruitment for positions is conducted both nationally and internationally. Women who are unable to move after completing their graduate training have fewer opportunities than those who are able to accept the best position regardless of geographical location. Scientists can, however, work in most large urban areas or in smaller college and university communities.

Entry and Reentry

The health sciences are male-dominated fields. In 1967, 89 percent of all doctoral-level health scientists were male, 11 percent were female (Mobility of Ph.D.'s Before and After the Doctorate, 1971, p. 194). Because of the long years of training required, especially for higher-level positions, early entry into the field is important. It is also crucial to remain active after completing training because scientific knowledge, techniques and equipment change rapidly. Even temporary withdrawal from employment is a barrier to career advancement. Significantly, only 40 percent of female scientists in 1967 were married (Mobility of Ph.D.'s Before and After the Doctorate, 1971, p. 194). Women scientists who marry often remain childless and those who do have children tend to remain professionally active, interrupting employment only briefly, if at all.

Career Contingencies

Opportunities for part-time or volunteer careers are limited at higher levels, but flexible hours are often possible to arrange. To advance in the field, full time commitment is usually expected. Part-time employment is more available at the research technician or assistant levels.

Health scientists generally participate in the activities of professional scientific associations in addition to their regular work activities. Both formal and informal participation in scientific associations is important for career development, especially at the Ph.D. level. Individual scientists may belong to a disciplinary association such as the American Psychological Association (APA) and/or be involved in multidisciplinary groups such as the American Association for the Advancement of Science (AAAS) or American Women in Science (AWIS). Many scientists hold membership in several organizations. In professional scientific associations, scientists exchange information on research methods and findings, funding sources and career opportunities. It is also through these organizations that health scientists establish and maintain collegial networks, essential for scientific career advancement.

FOR FURTHER INFORMATION

Associations

American Association for the Advancement of Science
1515 Massachusetts Avenue, N.W.
Washington, D.C. 20005

Association for Women in Science
1346 Connecticut Avenue, N.W., Room 112
Washington, D.C. 20036

References

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OCCUPATIONAL SUMMARIES

ANATOMY

Description

Anatomy is the science of the structure of the animal body and the relations of its parts. It is fundamentally concerned with the nature, development and functional configurational patterns of biological systems from the molecular to the gross level. It is largely based on dissection from which it obtained its name.

Anatomists study forms and structures of human and other animal bodies, examine large body organs and the minute structures of tissues and cells. Anatomists also investigate the ability of bodies to regenerate destroyed or damaged parts and to receive or reject transplanted organs and skin segments.

Education

Undergraduate training in a natural science is necessary to pursue a career in anatomy. At the graduate level students specialize in a substantive area (e.g., cell biology). Research methods (e.g., techniques for preparing specimens and using the electron microscope) may be undertaken. Graduate training resulting in the Ph.D. is necessary for independent research.

Licensure

None.

Employment and Mobility

Anatomists work mainly in academic settings as teachers and/or researchers. Some work in private research laboratories. There are many areas of specialization; but because anatomy is a basic science, employment opportunities are widespread. Thus, anatomists can find employment in rural colleges and universities as well as in large metropolitan areas, where the highly specialized hybrid scientists must work.

FOR FURTHER INFORMATION

Associations

American Association of Anatomists
University of Arkansas
4301 W. Markham
Little Rock, AR 72201

BIOCHEMISTRY

Description

Biochemistry is a specialized interdisciplinary field combining biology and chemistry. It is a science concerned with the functional aspects of cells including cell division, synthesis of macromolecules (e.g., lipids, protein and

carbohydrates) and membrane transport. Biochemists study alterations in life processes in disease states and seek to discover methods to correct detrimental biochemical processes.

Education

For entry into the field of biochemistry, completion of training at the bachelor's level in biology and/or chemistry is necessary. Graduate training provides opportunities for specialization and advancement, and emphasizes research experience, necessary for independent research.

Licensure

None.

Employment and Mobility

Biochemists work in university-operated laboratories and hospitals, non-profit institutes and foundations, private industry (e.g.,pharmaceutical companies) and governmental agencies. Some are self-employed consultants. Biochemists may provide services to physicians, engage in basic or applied research, administration, quality control and/or college-university teaching.

Employment opportunities are greatest in areas where there is concentration of industry and/or of universities and colleges. Large metropolitan areas such as Los Angeles - Long Beach, California, New York City and Boston are major employment areas for biochemists.

FOR FURTHER INFORMATION

Associations

American Chemical Society
1155-16th Street, N.W.
Washington, D.C. 20036

American Society of Biological Chemists
9560 Rockville Pike
Bethesda, MD 20014

BIOLOGY

Description

Biology, the foundation science for many other health and biomedical sciences, is the study of life processes and living organisms. Areas of investigation range from the subcellular level through the study of populations and the interaction of groups with the environment. Cell membranes, protozoa and the aging process are all areas that are studied from a biological perspective.

Education

A bachelor's degree in general biological or natural science is required for entry. Undergraduate education provides a background in both the physical and biological sciences. Graduate education, which is desirable for all but the assistant or technician level positions, leads to specialization, particularly in research areas and research methods. Graduate training in biology can lead to careers in professions and sciences such as medicine, veterinary medicine, osteopathic medicine, pharmacology, nutrition, genetics, developmental biology, physiology, cell and molecular biology, microbiology and zoology.

Licensure

None.

Employment and Mobility

Biologists work in colleges and universities, medical schools, hospitals, clinics and local, federal and state government. They are primarily involved in basic and applied biological research, technical and instrumentation research and development and teaching. There are also opportunities for administration and consulting.

Career lines are very different for women at the B.S., M.S. and Ph.D. levels. Advanced degrees are needed for high level positions and advancement, but there are still many jobs open to those with the B.S. Due to the breadth of the discipline, there are many opportunities for entering highly specialized areas through both experience and advanced training.

FOR FURTHER INFORMATION

Associations

Federation of American Societies for Experimental Biology
9650 Rockville Pike
Bethesda, MD 20014

American Institute of Biological Sciences
1401 Wilson Blvd.
Arlington, VA 22209

BIOPHYSICS

Description

Biophysics is a specialized interdisciplinary area combining certain aspects of physics and biology to study the physical properties of living cells and organisms. By means of systematic observation and experimentation, biophysicists seek to understand how fundamental physical laws of matter and energy are related to biological events. Areas for biophysical investigation include, for example, the dynamics of vision and hearing, the transmission of

electrical impulses along muscles and nerves and damage to tissues and organs from exposure to Xrays and nuclear particles.

Education

Undergraduate training in the physical and/or biological sciences is necessary to undertake graduate training in a department of biophysics or a department of biophysics and biochemistry. At the doctoral level, the student undertakes research in a highly specialized area incorporating both physics and biology.

Licensure

None.

Employment and Mobility

Biophysicists are employed by private industry, nonprofit research organizations, commercial laboratories, independent research organizations, colleges and universities and the federal government. They teach, conduct research, and develop and administer research projects.

Employment opportunities are greatest in areas where there is a high concentration of industry and/or of universities or colleges. Major metropolitan areas such as Los Angeles-Long Beach, California, New York City and Boston have high concentrations of biophysicists.

FOR FURTHER INFORMATION

Associations

American Institute of Physics
255-East 45th Street
New York, NY 10017

CHEMISTRY

Description

Chemistry is the science of the composition, structure, properties and reactions of organic and inorganic matter, particularly at the elemental and molecular levels. Chemists perform varied duties involving the investigation of matter and the laws that govern the combination of elements. Chemists generally pursue: (1) basic research, involving the testing and development of scientific theories of chemical properties, (2) applied research, utilizing existing knowledge to create or improve new products or processes, and (3) analysis and testing of the composition and behavior of chemicals.

Education

Entry into the field of chemistry requires a minimum of a bachelor's degree. At the graduate level, there are opportunities for specialization in organic, inorganic, biochemical, physical, analytic and nuclear chemistry with emphasis on research. The Ph.D. is desirable for independence in research, and advancement and geographical mobility.

Licensure

None.

Employment and Mobility

Chemists work in industry, educational institutions, local and federal government, nonprofit institutes, the military and public health settings.

Chemists can move amoung private industry, government and academe. There are opportunities for specialization and for advancement into administrative positions in all spheres of employment. The majority of opportunities in the United States are in regions where government and industry are concentrated.

FOR FURTHER INFORMATION

Associations

American Chemical Society
1155 - 16th Street
Washington, D.C. 20036

EPIDEMIOLOGY

Description

Epidemiology is the study of factors that affect the occurrence, course and interdependence of health, disease and environment in human populations. Epidemiologists study people in relation to their total environment, including the sociological, behavioral and environmental factors that play major roles in the health of populations. Through the collection and interpretation of data by means of statistical and mathematical methods, epidemiologists seek to determine the distribution of health problems and identify causal factors. Sophisticated electronic data processing systems are used to analyze data. Diverse health problems including acute and chronic illnesses, communicable diseases, behavioral disorders, alcoholism and drug abuse are studied.

FOR FURTHER INFORMATION

See Chapter 5: Public Health Careers in Epidemiology.

GENETICS

Description

Genetics is concerned with the processes by which hereditary characteristics are transmitted from parents to offspring. It cuts across all the biological sciences. Depending on the subfield of specialization, familiarity with botany, zoology, bacteriology, biochemistry, physiology and other fields is needed. Research geneticists study characteristics or mutations in plants and animals, how these affect the organism and how they are transmitted. Applied geneticists are often involved in various aspects of genetic screening and counseling.

Education

A bachelor's degree in one of the biological sciences is the basic preparation for a career in genetics. A master's degree is the minimum requirement for most jobs; the Ph.D. is the strongly preferred level of preparation. At the graduate research level specialization is undertaken in a particular area of genetics such as population genetics, medical genetics or cytogenetics.

Licensure

None.

Employment and Mobility

Geneticists are employed in universities and colleges, government institutions and in commercial and nonprofit laboratories where they undertake research, teach, counsel patients and their families and serve as consultants to physicians and other health professionals involved in the screening, diagnosis and treatment of genetic diseases. Since genetics is a broad discipline incorporating many of the biological sciences, geneticists have opportunities to pursue diverse specialities.

FOR FURTHER INFORMATION

Associations

American Genetics Association
1027 Connecticut Avenue, N.W.
Washington, D.C. 20036

References

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Cohen, Bernice H., Abraham M. Lilienfield, and P.C. Huang (1978) Genetic Issues in Public Health and Medicine. Springfield, Ill.: Charles C. Thomas.

HUMAN DEVELOPMENT

Description

Human development is an interdisciplinary field drawing on the basic disciplines of anthropology, psychology, social psychology, sociology and biology. Using social science research methods, human development specialists study normal developmental processes, socialization, life-cycle integration with social systems, social dysfunctions in later life and the relationship between stresses and physical and mental health. Human development researchers often specialize in specific life-cycle stages (e.g., early childhood, adolescence, old age).

Education

To become a human development specialist, a master's degree or a Ph.D. is generally required. Undergraduate training in the social-behavioral sciences, biological sciences or the humanities is required for entrance into graduate programs. Emphasis is on research training.

Licensure

None.

Employment and Mobility

Human development specialists work primarily in colleges and universities, where they teach, conduct research and perform consulting services. Some are employed in clinical facilities and private social science research institutes.

With the population becoming older, there will be increasing opportunities for individuals who have special knowledge and training in adult development and aging. Opportunities are best for persons interested in interdisciplinary work and the application of scientific knowledge to social institutions.

FOR FURTHER INFORMATION

Associations

American Psychological Association
1220-17th Street, N.W.
Washington, D.C.

American Sociological Association
1722 "N" Street
Washington, D.C. 20036

American Anthropological Association
1703 New Hampshire Avenue, N.W.
Washington, D.C. 20009

MEDICAL ANTHROPOLOGY

Description

Medical anthropology examines sociocultural aspects of health and illness, health value and belief systems and the structure of health and healing cross-culturally. Medical anthropologists consider both the sociocultural and biocultural components of health and illness. Medical anthropologists seek to advance scientific knowledge of health and health systems and to provide health practitioners knowledge of the religious, psychological and cultural factors involved in human health and illness behavior.

Education

One may enter the field of medical anthropology from any branch of anthropology -- physical, cultural or social -- or from a clinical profession such as medicine or nursing. Advanced training may focus on cross-cultural medical systems and adapting services to meet the needs of patients and practitioners from diverse cultural backgrounds. Graduate work at the doctoral or postdoctoral level consists of academic course work, field research and/or internships in health settings.

Licensure

None.

Employment and Mobility

Medical anthropologists usually teach, administer and conduct research, serve as consultants and evaluate health programs. Most medical anthropologists work in colleges and universities, international health organizations or government agencies.

Because medical anthropology is a relatively new field of specialization, career lines are open. Employment opportunities are greatest in highly specialized institutions and for persons interested in pursuing interdisciplinary work with other scientists and health professionals.

FOR FURTHER INFORMATION

Associations

American Anthropological Association
1703 New Hampshire Avenue, N.W.
Washington, D.C. 20009

MEDICAL SOCIOLOGY

Description

Medical sociologists focus on the social factors related to health and illness and on the social organization of health care institutions and health seeking behavior. Using social science research methods, medical sociologists investigate the social etiology and ecology of disease, the social organization and utilization of health care delivery systems and the socialization and utilization of health personnel. Some medical sociologists specialize in researching the politics of health care and health policy.

Education

Graduate work in sociology is necessary to become a medical sociologist. At the doctoral and/or postdoctoral levels, specialization in health and illness can be directed toward qualitative, quantitative and/or historical-comparative methods. A doctoral degree is necessary for most academic and non-academic research and/or teaching positions.

Licensure

None.

Employment and Mobility

Medical sociologists teach and conduct research in college and university departments of sociology, and in schools of nursing, medicine, social work and public health. Government agencies and health services agencies also employ medical sociologists on a regular basis and as consultants.

Working in a specialized area of sociology, medical sociologists have opportunities for working within their primary discipline or moving into interdisciplinary and applied fields. Opportunities for employment are best in institutions offering health professions or preprofessional training.

FOR FURTHER INFORMATION

Association

American Sociological Association
Medical Sociology Section
1722 "N" Street, N.W.
Washington, D.C. 20036

MICROBIOLOGY

Description

Microbiology is the study of the structure, classification and physiology of microorganisms (including bacteria, viruses, protozoa, mycoplasma and rickettsia), and the interaction of microorganisms with other organisms, including man. Microbiologists use laboratory instruments and techniques to prepare bacteriological media to isolate and identify microorganisms. They are primarily involved in four areas: medical research; public health programs focusing on the prevention of the spread of disease within the community; hospital and clinic microbiology, involving the analysis of laboratory specimens obtained from human patients; industry and agriculture.

Education

An undergraduate degree in the biological sciences with an emphasis in microbiology or bacteriology is required for entry into the field. Graduate work in microbiology involves specialized training in refining microbiological techniques and extensive laboratory experience emphasizing research. In certain areas such as applied medical or public health microbiology, highly specialized courses in instrumentation and research techniques are required.

Licensure

Certification by the American Board of Microbiology or the National Registry is required to practice clinical microbiology.

Employment and Mobility

Microbiologists work in public health laboratories, industry and in academic settings ranging from colleges and universities to health professions schools. Microbiologists perform various functions. They supervise and direct the cultivation, classification and identification of microorganisms, train and supervise microbiology technologists and technicians, conduct research, correlate lab findings with clinical data, investigate various modes of disease transmission; and teach and serve as administrators. Alternative careers in microbiology include. food and drug inspection, public health administration, sanitation and food technology. See Chapter 4, Health Professions.

FOR FURTHER INFORMATION

Associations

American Academy of Microbiology
P.O. Box 897
Vero Beach, FL 32960

American Society of Microbiologists
115 Huron View Blvd.
Ann Arbor, MI 48103

NUTRITION

Description

Nutrition is the study of the processes by which an organism ingests and uses food. Nutrition is an interdisciplinary field incorporating knowledge of biochemistry and physiology and applying this knowledge to food utilization. Nutritionists research the biochemical and biophysical aspects of nutrition, the genetics of food metabolism, experimental nutrition and related topics.

Education

For a career in nutritional science, a bachelor's degree in one of the biological sciences or in food science and nutrition is necessary. Graduate training involves advanced study in theories and techniques of nutritional research including the application of biochemical research procedures such as chromatography and ultracentrifugation.

Licensure

Registration with the Registry of Dietitians is advantageous for careers in hospital based nutritional services. See Chapter 4, Health Professions.

Employment and Mobility

Nutritional scientists work in universities and colleges, private industry and nonprofit research institutes. In addition to research, nutritional scientists teach and/or manage and administer nutrition research programs.

With the increase in world population, food supplies must be altered and increased. Thus, there will be opportunities for advanced nutritional science research in the coming decades.

FOR FURTHER INFORMATION

Association

Federation of American Societies for Experimental Biology
9650 Rockville Pike
Bethesda, MD 20014

PHARMACOLOGY

Description

Pharmacology is the science devoted to the study of the action of drugs on living systems and their constituent parts. Pharmacologists seek to understand the structure and function of chemical compounds within living systems. Pharmacological investigation includes the intermolecular reactions of cellular chemical compounds with drugs, the evaluation of drug effectiveness in the treatment of disease and the effects of environmental chemicals on human populations. Pharmacology is one of the broadest fields in the health sciences and can be approached from different scientific vantage points (e.g., biology, chemistry or physics). Pharmacology includes many specialties such as clincal pharmacology (testing of pharmacological products on humans), molecular pharmacology, biochemical pharmacology, neuropharmacology, cardiovascular pharmacology, chemotherapy, toxicology, pharmacodynamics, behavioral pharmacology and endocrinology.

Education

Preparation for careers in pharmacology can include undergraduate education in biochemistry, mathematics, zoology or professional training in medicine or pharmacy. Graduate training in pharmacology involves extensive laboratory experience and course work.

Licensure

None.

Employment and Mobility

Pharmacologists work in nonprofit institutions, government agencies and hospitals as teachers, researchers and/or administrators. As a broad field, pharmacology offers many opportunities. A large number of pharmacologists have training in other scientific disciplines and/or clinical professions, thus are well prepared for interdisciplinary research and mobility across fields as well as within the field. Environmental and industrial health are two new areas where pharmacology is expanding, and additional growth can be expected.

FOR FURTHER INFORMATION

Association

American Society of Pharmacologists and Experimental Therapeutics
965 Rockville Pike
Bethesda, MD 20014

American Society of Clinical Pharmacology and Therapeutics
1718 Gallagher Road
Norristown, PA 19401

PHYSIOLOGY

Description

Physiology is the science of activities and functions of life in unicellular and multicellular organisms, including humans. Physiological research focuses on the underlying physical and mechanical mechanism of all biological processes. Research may be focused on many areas, for example, comparative studies of life processes, animal dysfunctions and environmental studies of human responses to the forces and stresses of everyday life.

Education

Undergraduate training should include not only physiology, but physics and organic chemistry. At the graduate level, fields of specialization include neurobiology, neurophysiology, endocrinology, fetal and neonatal physiology and enzyme kinetics. The doctoral degree is needed for independent research, especially in academic settings.

Licensure

None .

Employment and Mobility

Physiological research is conducted in universities, government agencies, professional schools, research institutes and private consulting firms and industry. Physiologists also teach and administer research projects. The techniques and equipment used by physiologists change rapidly, so it is necessary to keep abreast of advances.

FOR FURTHER INFORMATION

Association

The American Physiological Society
960 Rockville Pike
Bethesda, MD 20014

ZOOLOGY

Description

Zoology is the study of animal biology, excluding the human species. Zoologists focus on life processes from the subcellular level through the whole organism and populations of organisms. Fish, mammals, insects and other organisms are studied. Research areas include investigation into the biology

of different animal groups, classification and nomenclature, animal ecology and distribution and organic evolution.

Education

Entry requires a bachelor's degree in the natural sciences with an emphasis in zoology, microbiology or genetics. At the graduate level,students specialize in particular animal groups and/or biological processes related to specific animals or animal groups.

Licensure

None.

Employment and Mobility

Most zoologists teach and/or conduct research in universities and colleges. They also work in state and federal agencies, industrial laboratories and natural history museums. The breadth of zoology provides opportunities for careers in many diverse specialties and geographical locations.

FOR FURTHER INFORMATION

Association

American Society of Zoologists
Box 1739
California Lutheran College
Thousand Oakes, CA 91360

CHAPTER 4: CAREERS IN HEALTH PROFESSIONS AND PARAPROFESSIONS

Jean Taggart Born and Ellen White

GENERAL CAREER PATTERNS AND REQUIREMENTS

Description

Health care professionals involved in various aspects of patient care include physicians, nurses, optometrists, dentists, veterinarians, osteopaths, pharmacists, clinical psychologists, podiatrists, chiropractors, dental hygienists, speech pathologists, audiologists, dietitians, clinical social workers, medical technologists, nuclear medical technologists, bioengineers, medical record administrators, and physical, occupational, therapeutic recreational and creative arts therapists. There are now over 100 paraprofessions with job titles such as radiologic technologist, respiratory therapist, dental assistant, physician's assistant, pharmacy assistant, licensed vocational or practical nurse; all of these persons work closely under the direction of a health professional.

The "free," or autonomous, health professions such as medicine and dentistry have had nearly complete control over how they perform their work with clients. These occupations are marked by high degrees of autonomy, responsibility, authority, prestige and high salaries. Traditionally these have been male-dominated fields. Many physicians, dentists and other "free" professionals are now salaried employees of large organizations; nonetheless these professional groups have been able to retain autonomy and authority in organizational practice (Freidson 1967). The organizationally based health professions such as nursing, dietetics and clinical social work are generally less autonomous; allied health practitioners are afforded less prestige and receive salaries considerably lower than those of "free" professionals. Women predominate in these less prestigious fields.

The term "paramedical" often is used to refer to both professionals and paraprofessionals whose work is ultimately controlled by physicians and other more autonomous professionals. This terminology contradicts the traditional concept of the professional as a worker subject primarily to collegial rather than hierarchical supervision and control (Freidson 1963, p.14). Today, the distinction between professionals and paraprofessionals is better described as the relative degree of supervision and control by others.

The majority of paramedical occupations have been established to utilize advances in medical technology that allow higher-status professionals to delegate routine tasks or new technical jobs to lower-status, less highly trained workers. For example, around the turn of the century, advances in medical technology allowed pathologists to train assistants to perform routine laboratory tests, freeing the physician to develop new tests and procedures. As laboratory assistants assumed greater and greater responsibility for testing, they formed their own occupational association, and cooperated with physicians in raising educational requirements so that today, a baccalaureate degree, and usually some advanced training, is required in many states; thus the new profession of clinical laboratory technologist, or medical technologist, evolved. Medical technologists now have their own assistants (often called medical laboratory technicians or certified technicians) to carry out more routine laboratory tests. These newest members of the health hierarchy are usually graduates of two-year community colleges or special vocational schools.

In addition to these workers, persons with clerical training are now taught to perform simple laboratory procedures "on the job," making them into clinical laboratory assistants.

This pattern of upgrading by delegating tasks to new lower level occupations is repeated throughout all professional - paraprofessional hierarchies. Social workers, for example, have pressed to have the M.S.W. required for professional practice. Social work assistants with baccalaureate degrees in social welfare, psychology or sociology now assume the more routine social work tasks, and in turn, are assisted by other lower-level aides (for example, indigenous community workers) who may have only a grade school education.

Education

Although length of training distinguishes the professions from many other occupations, there is no clearcut demarcation. Within the traditional health professions the length of training varies considerably. For some professions, such as medicine, dentistry or the sciences, extensive education -- four or more years beyond college -- is required for professional status. Other professions, such as nursing, require as little as two years of college, although the trend is toward baccalaureate training for the first level of professional nursing. Other allied health professionals must complete specialized training in a baccalaureate program or in a special training program. Physical therapists, dietitians and occupational therapists, for example, all must complete a year of specialized graduate or undergraduate training in specified subjects to be eligible for registration. (See the descriptions of educational requirements for specific occupations for further information.)

Educational requirements for paraprofessionals vary, but less formal training is required than for professionals. Most technical assistants (for example, machine technicians, dental assistants) complete two years of community college or accredited technical school training. In other fields, such as radiologic technology and respiratory therapy, a combination of college work and on-the-job training is needed. The trend is now toward a bachelor's degree in these two latter occupations.

Educational Expenses

Training costs for health professions and paraprofessions varies widely, depending in part on the number of years required. Community college programs are tuition-free. Tuition fees at public colleges and universities are often under $200 per year for state residents, but as high as $3,000 per year for out-of-state students. Tuition in private universities can exceed $5,000 per year. In addition to these expenses, students must be prepared to spend an additional $2,000 or more per year for room, board and incidental expenses. Thus the minimum cost of completing a two-year community college program would be $4,000 for living and incidental expenses if the student lives at home. A four-year public college or university education would cost a minimum of $15,000 to $20,000 if the student lives away from home. In a private institution,this could exceed $30,000.

Graduate tuition is generally similar to undergraduate tuition, but expenses for books, laboratory equipment and other educational material increases. In addition, living expenses are often higher for graduate students, especially for those with family responsibilities. Today, students serving residencies in hospitals and other health facilities generally receive salaries,

so educational expenses beyond the doctorate are minimal. Nonetheless, the cost of completing a three to four year graduate program in fields such as medicine and dentistry including the requisite undergraduate work runs anywhere from $30,000 to over $60,000.

Employment and Mobility

In most health settings, the physician is the most prestigious health professional at the apex of the health pyramid (Freidson 1963, p. 116). However, increasing industrialization of health care and the strong push of other occupations toward full professional status and functional autonomy are altering the physician's role and status. Between 1968 and 1978 the ratio of physicians to other health care providers dropped from 1 in 4 to 1 in 12 (Dempsey 1978). As other professionals such as nurse practitioners and hospital administrators assume some of the physician's traditional roles, they gain power and prestige. With the growth of "third party" (private and public health insurance) payments, the traditional client-physician relationship has been altered and nonphysicians have a larger role in setting the conditions for practice. Prepaid health plans or health maintenance organizations (HMO's) such as Kaiser Medical Foundation are increasing in number, and along with national health insurance will undoubtedly serve an increasing proportion of the population. In these newer, more bureaucratic forms of health care delivery, traditional ladders for career mobility have shifted, increasing job openings and mobility opportunities for lower-level professionals. With government officials and hospital administrators playing larger roles in the control of services, nurses and paramedical workers now have opportunities to move into administrative positions not previously accessible within a strictly physician-controlled hierarchy (Freidson 1963, p. 116).

The health professions and paraprofessions are heavily sex-typed. The lower the level of education and professional status, the more likely the worker will be female. Within the professions, women are clustered in the lowest-status, least prestigious, lowest paying specialties. Thus women physicians most often enter the less prestigious specialties such as psychiatry, pediatrics and anesthesiology; they rarely enter the high status surgical specialties. (See Chapter 2). Many newer paraprofessions have been strongly sex-typed from their inception. For example, physician's assistants were initially recruited from the ranks of former military medical corpsmen. As women enter this occupation, they tend to cluster in the pediatric and obstetric-gynecology specialties, whereas male physician's assistants more often enter general practice or a surgical specialty such as orthopedics.

Minority women enter the professions even less frequently (in proportion to their numbers in the population) than do white women. When minority women do enter, they are clustered in the lower-status, lower-paid professions and paraprofessions such as licensed vocational nursing and ancillary health jobs.

Entry and Reentry

Withdrawal from paid employment (except for brief periods) reduces employability. Reentry is especially difficult in the health fields where technology changes rapidly. Women planning withdrawal (for more than a year) should carefully consider possible alternatives, such as part-time practice or employment, or volunteer activity, to maintain their skills and familiarity with new technology. For professionals who have left the labor market for longer periods, refresher training may be available through university

continuing education programs, special reentry adult education programs (most often designed for nurses), volunteer work in community health organizations, hospitals and clinics. Reentry physicians sometimes undertake residency training to update skills or develop new specialties. Paraprofessionals may need to take refresher courses in community colleges or vocational schools to improve their chances for reemployment although this varies depending on local labor market demand and the length of absence from the field. Although it is extremely difficult to change health careers without a completely new educational program, many lower-level paraprofessional training programs in community colleges are tuition free. For some women, a new career may be more appropriate than updating old skills.

Career Contingencies

Part-time schedules and/or flexible hours often can be arranged in some health professions and paraprofessions, but not in others. Women who wish to work reduced hours to meet family responsibilities, continue their education, or pursue other interests, may find it easier to find part-time work or flexible hours in the health industry than in other industries because many health institutions operate twenty-four hours a day. Part-time work is often available for women willing to work night and weekend shifts or on an on-call basis. Professionals in private practice (either group or solo) can restrict their hours and patient load.

Because of reciprocal licensing agreements between states, dentists and other independent practitioners can usually find employment when relocating to another state. However, to establish a private practice, it is important to remain in a single geographical area, because private practice is dependent on referrals that are difficult to obtain unless one is known in the local community. When less autonomous health professionals and paraprofessionals relocate, institutional employment may be a problem.
Nonetheless, health careers can be pursued in most geographical locations. Employment opportunities vary considerably throughout the United States, but are greatest in underserved rural and inner-city areas, or large metropolitan medical centers.

FOR FURTHER INFORMATION

Associations

American Public Health Association
1015 18th Street, N.W.
Washington, D.C. 20036

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OCCUPATIONAL SUMMARIES - PROFESSIONS

ACTIVITIES THERAPY

Description

Activities therapists plan and implement a wide range of group and individual rehabilitation activities for patients needing physical and emotional activity and social contact. These therapists are specialists trained in therapeutic recreation or creative arts therapy including art, dance, music, drama and poetry. The traditional approach has been for therapists to program activities, but the current trend is toward creating an atmosphere conducive to social interchange among clients to foster social adaptiveness. Thus the emphasis has shifted from recreational activities to social interaction and psychodynamic change.

Education

Educational requirements vary, even within the specialties themselves, because these services have, in the past, been provided by occupational and physical therapists, or volunteers under the direction of these therapists. Some specialties have established baccalaureate programs in the specific discipline such as art or recreation, including clinical training . The trend, however, is toward a bachelor's degree in the activity field, with a psychology minor and a master's degree in therapeutic recreation or one or more of the creative arts therapies.

Licensure

Licensure is not required in most states. National registration has been established for some of the activities therapists, and requirements vary concerning the scope and type of education and experience. Music, dance, art and recreation therapy have established standards; others are in the process of developing them.

Employment

Activities therapists work in hospitals, mental health facilities, community clinics and long-term care facilities.

Career Contingencies

Employment opportunities are increasing as the specialties gain increased recognition. Due to the number of volunteers in the field and limited demand, part-time work is often more available than full-time employment. Reentry is difficult to predict due to the newness of the specialties. As with other occupations, as the fields become more established, educational and experience requirements will predictably tighten.

FOR FURTHER INFORMATION

Associations

American Association for Music Therapy
35 West 4th St., Room 777 Education Bldg.
New York, N.Y. 10003

American Art Therapy Association
c/o Intermanagement
1 Cedar Blvd.
Pittsburgh, PA 15228

National Therapeutic Recreation Society
1001 North Kent Street
Arlington, VA 22209

American Dance Therapy Association
2000 Plaza Suite, Suite 230
Columbia, MD 21044

American Association for Rehabilitation Therapy
Box 93
North Little Rock, AR 72116

AUDIOLOGY/SPEECH PATHOLOGY

Description

Although audiology and speech pathology are separate specialties, the two are closely allied. Both are concerned with communicative disorders; they help to determine the type and degree of specific speech or hearing disorders through interviews and testing and with administering remedial procedures through therapy and counseling. The audiologists may be involved with research and development of procedures, as well as teach in their respective fields. Some specialists are qualified to work with both hearing and speech disorders.

Education

Both specialties require basic undergraduate education related to human communication in speech and hearing disorders with graduate work leading to a master's degree in audiology and/or speech pathology. Ph.D. programs are also available.

Licensure

Certificates of clinical competency are awarded in either speech pathology or audiology or a combination of the two by the American Speech and Hearing Association. Requirements for eligibility are the master's degree, one year of field experience and passing the required examination. Twenty-nine states require licenses in addition to certification.

Employment

Audiologists and speech pathologists may work in hospitals, clinics, community organizations and rehabilitation or research centers. They may teach in community colleges with a master's degree, or in universities with a Ph. D.

Career Contingencies

Administrative planning and directing of speech and hearing programs are employment possibilities. Part-time employment and consultation are also possible. Reentry requires updating skills. This is often done by working with children in volunteer programs. Age is no a barrier in this field.

FOR FURTHER INFORMATION

Associations

American Speech and Hearing Association
108 Rockville Pike
Rockville, MD 10801

References

Black, John W. (1972) "Speech and Hearing Science." Introduction to Health Professions, ed. Ruth Odgers and Burness G. Wenberg, pp. 135-43. St. Louis: The C.V. Mosby Company.

BIOMEDICAL ENGINEERING

Description

Biomedical engineers develop and apply engineering knowledge to biomedical research and health care delivery systems. In collaboration with health professionals, biomedical engineers design and develop complex new scientific equipment used in research, surgery, organ replacement, and treatment modes such as kidney dialysis. They also design and operate computerized systems for health care delivery institutions ranging from patient record retrieval systems to computerized diagnosis and billing. Bioengineers work primarily in the area of basic research and are typically employed in industry or by an academic institution. The clinical engineer, a relatively new specialty, is more concerned with clinical application of medical engineering design with focus on patient-medical device interface problems, maintenance of medical equipment systems, and the development and implementation of clinical engineering policies within a medical facility.

Education

Biomedical engineers typically hold the B.S. or M.S. degree from a college or university accredited by the Engineers' Council for Professional Development. A few programs require hospital internships to specialize in biomedical engineering. Often engineers with a B.S. in the broader field of electrical or electronic engineering develop expertise in biomedical areas through work experience.

Licensure

Bioengineers are certified by the American Association of Medical Instrumentation. State licensure generally is not required, although there is a trend toward this. The American Board of Clinical Engineering also certifies clinical engineers. Currently, a B.S. degree in one of the recognized branches of engineering, or a physical science, and five years of clinical experience are required to take the certification examination.

Employment

Hospitals, universities, public and private research laboratories, manufacturing and service industries all employ biomedical engineers in research and development, teaching, consulting and in developing, installing and maintaining health engineering systems and policies.

Career Contingencies

Biomedical engineering is a rapidly developing field, particularly with advances in the use of electronics in the health industry. Because there are so few women in this field, it is difficult to predict opportunities for part-time or flexible work schedules. Women with strong math and physical science backgrounds working with computerized health systems and related research might investigate possibilities of applying this experience toward further education to become a biomedical engineer. Special programs for women who have college backgrounds in math and science are now being developed to encourage women's entry or reentry into engineering fields.

FOR FURTHER INFORMATION

Associations

Biomedical Engineering Society
P.O. Box 1600
Evanston, IL 60214

Alliance for Engineering in Medicine and Biology
4405 East-West Highway, Suite 404
Bethesda, MD 20014

Society of Women Engineers
United Engineering Center
345 East 47th Street
New York, NY 10017

References

Kreinberg, Nancy (1977) I'm Madly in Love with Electricity. Berkeley, California: Lawrence Hall of Science, University of California.

CHIROPRACTIC

Description

Chiropractic is a system of treatment based on the principle that an individual's health is determined largely by the condition of the nervous system; interference with this system impairs normal body functions and lowers resistance to disease. Chiropractors use no drugs or surgery; radiology is only used for diagnostic purposes. Treatment includes external manipulation of parts of the body, particularly the spinal column, and other types of therapy that may activate, inhibit, stimulate, relax or accelerate the various internal organs, glands and muscles through physical and electrotherapeutical means. Other therapeutic approaches include nutrition, diet therapy, vitamins and minerals and exercise. Orthopedics and roentgenology are the two recognized specialties.

Education

All states require completion of four years of chiropractic education leading to the Doctor of Chiropractic degree (D.C.). Two or more years of college are required for admission to a chiropractic college. There are ten chiropractic schools in the United States holding status with the Council on Chiropractic Education, the accrediting agency for chiropractic schools. To become a board certified specialist in orthopedics and roentgenology requires postgraduate training and passing an examination given by the American Councils of Chiropractic Orthopedics or Chiropractic Roentgenology.

Licensure

All states and the District of Columbia require a license to practice. To be licensed in most states, one must hold a D.C. degree from a chiropractic college approved by the Council on Chiropractic Education and pass an examination given by state boards of chiropractic licensure. Several states require chiropractors to hold a basic science certificate (awarded upon passing an examination), in order to take the licensing examination. Many states require continuing education for relicensing. Reciprocity agreements between states depend on the similarity of licensing requirements.

Employment

The majority of chiropractors are in independent practice. Others may work as salaried employees for established chiropractors, or in chiropractic clinics, teach, or do research.

Career Contingencies

The possibilities for part-time work are good, particularly in private practice. The increased emphasis on professionalism through educational and licensure requirements may require refresher or further training for the chiropractor wishing to resume practice after an absence of several years. Employment and private practice prospects for the professional are good, particularly with the increasing public interest in nutrition and exercise as vital in regaining as well as maintaining good health.

FOR FURTHER INFORMATION

Associations

American Chiropractic Association
2200 Grand
Des Moines, IA 50312

American Council of Women Chiropractors
c/o Elizabeth Gerit D.C.
3169 South Grand Blvd.
St. Louis, MO 63118

References

Dintenfass, Julius (1975) Chiropractic, A Modern Way to Health. New York: Pyramid Books.

Journal of Clinical Chiropractic.

CLINICAL PSYCHOLOGY

Description

Clinical psychology is the study of the psychological components of human functioning with the aim of applying clinical skills of therapeutic modification and of providing psychological testing. Intervention is directed toward various systems levels (individuals, couples, families and larger community systems). Clinical psychology is still evolving as a discipline; the current trend is toward the study and understanding of community systems and their role in creating healthy or pathogenic milieus; and on providing psychotherapy and psychological testing for persons with problems. Clinical psychologists also research major social issues (such as racism and the quality of life) to develop new intervention strategies.

Education

A Ph.D. from an educational program in Psychology, approved by the American Psychological Association (APA), and two years of supervised postdoctoral experience in an organized mental health training program are recommended, but requirements vary from state to state. The trend is toward clinical training programs for mental health workers at the associate, baccalaureate and master's degree levels as well as the Ph.D. level.

Licensure

Licensing varies considerably; some states require a Ph.D., others a master's degree. In 1973, the newly formed National Register of Health Service Providers in Psychology (NRHSPP) established formal criteria for registration based on suggestions by the American Psychological Association (APA) for state licensure. As of 1978, to be eligible for registration, applicants must have completed an approved doctoral program and completed a year or more of post-doctoral supervised clinical experience.

Employment

Clinical psychologists practice independently, as employees of public and private clinics, hospitals and other mental health institutions. Some serve as community consultants (with state licensure or NRHSPP registration), teach, or engage in research or administration.

Career Contingencies

Clinical psychologists are seeking professional autonomy and the field has rapidly expanded, thus creating opportunities for growth and advancement. Reentry is difficult, unless one keeps abreast of new developments and maintains clinical skills. However, opportunities for part-time practice or employment are good, making partial withdrawal from paid practice easier than in many other occupations. Some geographical locations may be highly competitive for both employment and private practice opportunities. Employment opportunities are best for clinical psychologists who have national registration.

FOR FURTHER INFORMATION

Associations

American Psychological Association
1200 17th Street
Washington, D.C. 20036

National Association for Mental Health
1800 North Kent Street
Arlington, VA 22209

National Register of Health Service Providers in Psychology
1200 17th St., N.W.
Washington, D.C. 20036

References

"Report on the Status of Women in Psychology" (1973) American Psychologist 27:7 pp. 611-16.

CLINICAL SOCIAL WORK

Description

Social workers in medical settings work with physicians and other health team members to alter or resolve clients' personal and environmental difficulties that interfere with medical care. Medical social workers serve as a linkage to after-care services providing resources for patients in overcoming difficulties that predispose illness. Psychiatric social workers provide direct psychotherapeutic services to the client using individual, group, family and crisis models. Depending on the setting, psychiatric social workers may have primary treatment responsibility and/or function as part of a multidisciplinary team. Social workers also are involved in the planning of programs supportive of physical and mental health in public health and community health settings. Licensed clinical social workers practice as independent mental health practitioners in many areas. Often there are difficulties regarding licensure and third-party payments.

Education

The master's degree in social work (M.S.W.) is preferred or required by most organizations. A bachelor's degree is acceptable in limited areas, but limits one's career mobility. Graduate training for the M.S.W. involves two years of course work and supervised clinical training. Clinical social workers often undertake specialized training in interdisciplinary health programs. Some graduate programs offer a Ph.D. in social work, or a D.S.W. (Doctor of Social Work).

Licensure

Membership in the National Association of Social Workers (NASW) is open to holders of bachelor's and master's degrees in social work and persons with bachelor's degrees in related areas combined with social work experience. Eighteen states currently require certification or registration; nine of those require licensure as well. Social workers with M.S.W.'s from accredited institutions can become certified clinical social workers and join the Academy of Certified Social Workers (ACSW) after practicing for two or more years in an approved clinical setting and passing an NASW written examination. The trend is toward state licensing, but requirements vary in the several states that currently license clinical social workers.

Employment

Opportunities exist in many settings, including hospitals, clinics, mental health centers, private voluntary agencies, correctional institutions and other public agencies. In some states licensed clinical social workers can practice independently or in group practices with other mental health professionals. Opportunities for high-level administrative, planning, research and teaching positions are best for persons holding a Ph.D. or D.S.W. Although women increasingly hold these advanced degrees, men continue to hold a disproportionate number of high-level positions.

Career Contingencies

Age is not a barrier for admission to graduate school. Employment possibilities are good for M.S.W. holders with specialized experience; inexperienced professionals may face some difficulty. Holders of the B.S.W. usually have fewer opportunities. Part-time employment is possible; private practice provides flexible work schedules. Social workers reentering the field may refresh skills through volunteer work and/or continuing education courses.

FOR FURTHER INFORMATION

Associations

National Association of Social Workers
1425 "H" Street, N.W., Suite 600
Washington, D.C. 20005

Academy of Certified Social Workers
1425 H Street, N.W., Suite 600
Washington, D.C. 20005

Council on Social Work Education
345 E. 46th Street
New York, NY 10017

National Association for Mental Health
1800 N. Kent Street
Arlington, VA 22209

Society for Clinical Social Work
1107 Ninth Street, Room 1008
Sacramento, CA 95814

References

Chafetz, Janet S. (1972) "Women in Social Work." Social Work 17:5 (Sept.). pp. 12-18.

Davis, Mae M. (1972) "Medical Social Work." Introduction to Health Professions, ed. Ruth Odgers and Burness G. Wenberg, pp. 144-150. St. Louis: The C.V. Mosby Company.

"Special Issue on Women." (1976) Social Work 21:6 (Nov.).

Walton, Ronald G. (1975) Women in Social Work. London and Boston: Routledge and Kegan Paul.

DENTAL HYGIENE

Description

The dental hygienist is an oral health educator and practitioner who, under the direction of a dentist, is responsible for dental prophylaxis (scaling and polishing of the teeth), exposing and processing dental radiographs, applying fluorides and other preventive agents to teeth, performing oral inspections (including cancer screening), administering local anesthesia, and instructing patients in oral hygiene techniques and proper diet. The hygienists' tasks vary depending on the level of training and state licensing laws. In some states, the hygienist's role has been expanded to include a wider range of services such as placing fillings and spacemaintainers, some orthodontia and minor periodontia.

Education

There are two possible educational programs. Community colleges and technical schools offer a two year program leading to an Associate degree or certificate. Accredited Schools of Dentistry offer a two year baccalaureate degree program; admission to this program generally requires two years of undergraduate college work in science. All educational programs qualify graduates

to take the National board and individual state licensing examinations; however the baccalaureate courses qualify its graduates as teachers, administrators and researchers in addition to clinical practice.

Licensure

All states require licensure. Successful National Board examination results are accepted for the written portion toward state licensure. A clinical examination must also be passed. Regional boards are given in some areas of the United States, qualifying the dental hygienist to practice in several states within the area.

Employment

Dental hygienists must practice under the direct supervision of a dentist. Private practice offices, clinics and institutional settings are typical places of employment. Graduates may teach patient education and other aspects of dental hygiene to community groups, in classroom settings, in-service programs in clinics and hospitals or may go into more specialized areas of clinical practice. In addition, graduates of baccalaureate degree programs may teach in colleges or universities with dental hygiene programs, in public schools, perform research, or assume administrative roles in large clinics, local, state or federal government positions.

Career Contingencies

Part-time work is possible. Reentry may be difficult, with rapidly changing technology; however, continuing education courses are becoming more widespread to correct this condition. There is a trend in some schools to encourage predental hygiene students to complete requirements that will qualify them for admission to dental school as well as dental hygiene. Functions of dental hygienists are now being revised and expanded to include a wider range of services.

FOR FURTHER INFORMATION

Associations

American Dental Hygienist Association
211 East Chicago Avenue
Chicago, IL 60611

References

Odgers, Ruth F. and Burness G. Wenberg (1972) "Dental Hygiene." Introduction to Health Professions, ed. Ruth Odgers and Burness G. Wenberg, pp. 79-84. St. Louis: The C.V. Mosby Company.

DENTISTRY

Description

Dentists focus on the maintenance and restoration of health and the normal function of the oral cavity. This involves prevention, diagnosis and correction of disease and injury to the teeth and the supporting oral structures. Dentists are licensed to prescribe and administer drugs, to perform surgery, and assume final responsibility for delivery of all dental services including those provided by allied health professionals such as dental hygienists. The trend in dentistry is toward specialization; the American Dental Association currently recognizes eight specialties.

Education

Admission to dental school requires a minimum of two years of undergraduate college education; however, most students complete three or four years and hold bachelor's degrees before entering. Four years of combined academic and clinical training in dental school leads to the D.D.S. (Doctor of Dental Surgery) or less frequently D.M.D. (Doctor of Dental Medicine) degree. Advanced education is available through continuing education programs and graduate academic programs.

Licensure

Most states have reciporcal licensing agreements. Graduates of dental schools must pass a state licensing examination administered either by an individual state board of dental examiners or by the National Board of Dental Examiners (now recognized by 49 states). Fourteen states require licensure of dental specialists who are also certified by a specialty certification board.

Employment

Although the majority of dentists are in private practice, many work in group practices or in government institutions, hospitals and clinics. Most specialists engage in similar practices but are more likely to have appointments in dental schools where they teach and/or engage in research; they are also more often located in large urban areas than in small communities.

Career Contingencies

Most dental schools do not state age restrictions; some are more liberal than others in admitting older students. Women have been entering dentistry in increasing numbers. Establishing a private practice is very expensive but opportunities for group practice and salaried employment are good. Part-time practice or employment is also feasible. Reentry usually requires refresher training; dentists trained in other countries may have to repeat or augment their training in a school of dentistry approved by the American Dental Association. to be licensed.

FOR FURTHER INFORMATION

Associations

American Dental Association
211 East Chicago Avenue
Chicago, IL 60611

American Association of Dental Schools
1625 Massachusetts Avenue, N.W.
Washington, D.C. 20036

References

Dew, William C. (1972) "Dentistry." An Introduction to Health Professions, ed. Ruth F. Odgers and Burness G. Wenberg, pp. 21-28. St. Louis: The C.V. Mosby Company.

Linn, Erwin L. (1972) "Women Dentists: Some Circumstances about their Choice of Dentistry." Journal of the Canadian Dental Association 10:364-69.

----- (1971) "Women Dental Students, Women in a Man's World." Milbank Memorial Fund Quarterly LIX: 3:2 (July).

----- (1970) "Professional Activities of Women Dentists." Journal of the American Dental Association 81 (Dec.).

Morris, Alvin L. DDS, PhD, and Harry M. Bohannan DMD, MSD eds., (1969) Dental Specialties in General Practice. Philadelphia: W.B. Saunders Co.

Women's Action Program (1976) An Exploratory Study of Women in the Health Professions Schools. Vol. 4, Dentistry - U.S. Department of Health, Education and Welfare. Final report pursuant to contract HEW-05-74-291 prepared by Urban and Rural Systems Associates (URSA), San Francisco, California.

DENTAL SPECIALTIES

Education and Certification

All specialties (except oral surgery and public health) require two years of postgraduate residency training beyond the D.D.S. degree. Oral surgery requires a one-year hospital internship and a two-year surgical residency. In addition, a specified number of years practice beyond formal training is required to take national specialty board certification examinations. A master's degree in public health is extremely desirable for a career in public health dentistry.

Endodontics

This is the newest specialty and concentrates on preserving the usefulness of teeth with diseased or nonfunctioning nerves and blood vessels. Endodontics

usually involves complicated cases (e.g., teeth with abnormal root canal anatomy) or surgery (e.g., root defect repair, intentional replantation).

Oral Pathology

Oral pathologists diagnose and treat diseases of the mouth and the resulting functional and material changes. Using advanced techniques for microdiagnosis of biopsy and cytologic tissue specimens and clinical diagnosis, these specialists suggest treatment including surgery for diseases such as cancer of the mouth. They are usually employed in dental schools, large medical center, universities and research institutions; and work as consultants to other medical professionals, rather than practice clinical dentistry.

Oral Surgery

Oral surgeons diagnose and treat cysts and tumors of the jaw, detect cancer, and perform maxillofacial surgery. They repair and perform other minor and major dental surgery often requiring hospitalization of patients.

Orthodontics

Orthodontists diagnose, prevent and correct dental and oral anomolies (i.e.,diseases, injuries and defects of the jaws and associated structures) using surgical and adjunctive treatments. Many work primarily with children to correct malocclusions of the "bite."

Pedodontics

Pedodontists specialize in the dental care of children and adolescents. They encourage children to accept dentistry, restore and maintain primary, mixed and permanent dentitions, apply preventive measures to minimize adult caries and periodontal diseases, and prevent, intercept and correct moderate problems of malocclusions.

Periodontics

Periodontists prevent and treat diseases of the soft and hard tissues surrounding and supporting the teeth, often associated with aging or lack of oral hygiene and/or preventive care.

Prosthodontics

Prosthodontists restore and maintain oral function by replacing missing teeth and other oral structures with artificial ones. The complexity of repair ranges from replacing one or more teeth, to complicated restructuring of soft and hard tissue to correct birth defects or the aftermath of facial surgery.

Public Health Dentistry

Public health dentists plan and implement community programs for dental health, research community dental problems such as the role of fluoride in community water systems, and develop educational programs in preventive dentistry and oral health. A master's degree in public health in addition to the D.D.S. is considered desirable preparation. These specialists usually are employed by public agencies, the military and medical centers.

DIETETICS

Description

Dietitians plan, direct and evaluate food management and nutritional care for individuals and groups in a variety of settings. They work as administrative and clinical dietitians in hospitals; as supervisors of food service in public schools, colleges, industry; and as nutritionists with public health and voluntary agencies. The majority of dietitians in health care settings are clinical practitioners serving on the health care team as the experts in determining and providing a person's nutritional needs in health and disease.

Education

Four years of college leading to a bachelor's degree in dietetics, nutritional sciences, or food service management and planned clinical experience in hospitals, clinics, or other institutions approved by The American Dietetic Association (ADA) are required for professional registration and active membership in the American Dietetic Association. Graduate programs in dietetics, nutrition, food service management, or related fields allow the dietitian to specialize in areas such as management consultation, public health nutrition, research, food manufacturing or teaching.

Licensure

State licenses are not required. Registry with the Commission on Dietetic Registration and membership in the ADA are voluntary; however, registration is almost universally required for employment in accredited health care institutions. Registration is granted to those who have met academic and clinical experience requirements and passed a registration examination. Graduate level continuing education every five years insures continued registration.

Employment

Dietitians work in health care settings, food service institutions, government and voluntary agencies, private industry and in the communications field. Dietitians with writing abilities or other special talents work in industries such as food processing, manufacturing of food processing equipment, television, radio broadcasting, publishing and advertising. Dietitians also are teachers, consultants and researchers. Part-time employment is possible, particularly in community health programs and small hospitals and nursing homes.

Career Contingencies

Age is not a serious limiting factor. Registration may be kept current during career interruption through continuing education courses. Reemployment opportunities are usually good because of strong demand, although this fluctuates in large urban areas depending on local labor market conditions. There is limited opportunity for moving into more general health administration, but dietitians with good management backgrounds supervise large departments in institutional settings as well as community programs. With the recent interest in nutrition, there may be increasing opportunities in the future.

FOR FURTHER INFORMATION

Associations

The American Dietetic Association
430 North Michigan Avenue
Chicago, IL 60611

References

Wenberg, Burness and Barbara K. Martin (1972) "Dietetics." Introduction to Health Professions, ed. Ruth F. Odgers and Burness G. Wenberg, pp. 85-94. St. Louis: The C.V. Mosby Company.

HEALTH COMMUNICATION

Description

Health communication is a broad field incorporating specialists from diverse disciplines. The health communicator may be a writer or editor, photographer, artist, medical illustrator, audiovisual expert in radio or television, public health educator or communication theorist specializing in the field of health sciences. The dissemination of health information involves a wide range of communication methods and subject matters. It includes disseminating health information to consumers and publicizing advances in health technology/research and educational material to health professionals. Communication theory, a relatively new focus of interest in the health industry, focuses on the social and behavioral aspects of the communication process itself. Many of these new communication specialists are health professionals with additional education in communication theory, or are graduates of university programs in human communications.

Education

Educational requirements range from demonstrable skills and on-the-job training to specialized academic and technical education; some persons hold advanced degrees in communication theory. Career lines are varied, often involving integration of education and experience in diverse fields. Writers and editors, for example, may hold a degree in English, journalism, health or technical writing; often they acquire health knowledge through working as medical secretaries or research assistants. Medical illustration, on the other hand, requires a two or three year technical program leading to a certificate, bachelor's or master's degree in medical illustration. To enter such a program two to four years of college including biological sciences and art are generally required. Audiovisual experts usually become specialists in health communication through their basic skills in film, television, radio and videotape. Communication theorists may complete a baccalaureate or master's program in departments of communication studies (or speech communication) with interdisciplinary courses in health sciences. Some universities have departmental majors in medical communication.. Health professionals including nurses, social workers and psychologists often enter master's or doctoral programs to become specialists in health communication: Ph.D. programs in psychology with

specialization in health communication systems are now offered by some schools and can be arranged in others as interdisciplinary doctoral programs. Public health education is a well-established discipline for health communicators (see Chapter 5).

Employment

Many persons involved in health information and education are well established with careers in hospitals, clinics, research and educational institutions. However, the increasing complexity of the health care delivery system has increased the need for knowledge of communication processes between health professionals and consumers and between health professionals themselves. Many of these newer health communicators work in traditional institutions but carry titles such as community relations officer or counselor, and are employed in a wide variety of departments (such as in-service training or in community based health service and research projects). Pharmaceutical companies and other health manufacturing industries also employ communication experts.

Career Contingencies

Employment opportunities in one of the established careers such as medical illustration, audiovisual or writing are best in urban areas where there are large hospitals and university medical centers. Finding a job as a health communicator may be difficult because of the ambiguity of job titles. Persons seeking employment need to be alert to openings that may have ambiguous titles or job descriptions. The need for health communicators is growing rapidly, however, and could be an attractive option for the reentry health professional or women considering a change of career. Part-time and/or flexible hours may also be possible to arrange.

FOR FURTHER INFORMATION

Associations

American Medical Writers Association
5272 River Road, Suite 290
Bethesda, MD 20014

Association of Medical Illustrators
6650 Northwest Highway
Chicago, IL 60631

Biological Photographic Association
P.O. Box 1057
Rochester, MN 55901

Speech Communication Association
5205 Leesburg Pike
Falls Church, VA 22041

References

National Center for Health Statistics (1975) Health Resources Statistics, Health Manpower and Health Facilities. Washington, D.C.: Government Printing Office. DHEW Publication (HRA) 76-1509.

Odgers, Ruth and Burness Wenberg (1972) Introduction to Health Professions. St. Louis: C.V. Mosby Company.

Prosser, Mitzi and James R. Kreutzfeld (1972) "Medical Illustration." Introduction to Health Professions, ed. Ruth Odgers and Burness G. Wenberg, pp. 167-172. St. Louis: The C.V. Mosby Company.

Schoen, Kathryn (1972) "Medical Communications." Introduction to Health Professions, ed. Ruth Odgers and Burness G. Wenberg, pp. 158-166. St. Louis: The C.V. Mosby Company.

MEDICAL RECORD ADMINISTRATION

Description

Medical Record Administrators plan and direct the system of acquisition, retention and retrieval of complete medical records of each patient cared for by the medical team. Medical records are a key element in diagnosis and treatment of individual patients. They provide a means of identifying disease patterns, and a source of information for clinical research. Medical record administrators also plan, design and advise hospital administrators in implementing automated health information systems used for diagnostic, educational and research purposes and supervise the development of statistical data for evaluation of quality of care and efficient utilization of health resources.

Education

There are two types of training programs approved by the American Medical Association: (1) a four-year college program leading to a bachelor's degree in medical record administration; (2) one-year postbaccalaureate certificate program for those who hold a bachelor's degree in another field.

Licensure

Hospitals and other health facilities employ only nationally registered administrators. A graduate of an approved program is eligible to take the American Medical Record Association's national examination to qualify as Registered Record Administrator (RRA). Continuing education credits are required to maintain active registration.

Employment

R.R.A.'s are employed in acute care hospitals, outpatient clinics, extended care community health centers, health planning agencies and private consulting firms. They may also be employed in tumor registries and health research projects.

Career Contingencies

The expanding use of computer data processing in the health care system has broadened the scope and enhanced the importance of the R.R.A. Part-time employment is sometimes possible; flexible hours are usually not possible. Women desiring to reenter the field should check the currency of their credentials with the American Medical Record Association. R.R.A.'s are in demand throughout most areas of the country.

FOR FURTHER INFORMATION

Association

American Medical Record Association
875 N. Michigan Avenue, Suite 1850
Chicago, IL 60611

Reference

Pae, Daniel J. (1972) "Medical Record Administration." Introduction to Health Professions, ed. Ruth Odgers and Burness G. Wenberg, pp. 103-108. St. Louis: The C.V. Mosby Company.

MEDICAL TECHNOLOGY

Description

Medical technologists perform laboratory tests using chemical, microscopic, bacteriologic, hemotologic, immunologic and other procedures used in the diagnosis, study and treatment of disease. Their work requires the use of intricate, precision equipment and specialized procedures. Medical technologists may work directly with patients in small laboratories, or behind the scenes in larger ones. Some work as general technologists performing a wide variety of tests; however, the trend is toward specialization in a particular area such as blood bank, chemistry, microbiology or hematology. Most clinical laboratories are under the direction of a physician specialist in pathology or the newer field of clinical pathology.

Education

Some states require only vocational or technical school training. Others require a B.S. in medical technology or an allied science (chemistry, biology or physiology) or three years of college science combined with a one-year laboratory internship in a hospital laboratory school approved by the American Medical Association. A college program is required for registration by the American Society of Medical Technologists (ASMT). Master's degrees and/or certificates in specialties (including clinical chemistry, microbiology, blood bank and laboratory management) are offered by many institutions. The trend is toward upgrading educational and clinical requirements; and those interested in

advancement are encouraged to seek higher degrees. Many laboratories now require a master's degree for supervisory personnel.

Licensure

To become a nationally recognized registered medical technologist, applicants meeting the educational requirements must pass a written examination given by the Board of Registry of Medical Technologists under the sponsorship of the American Society of Clinical Pathologists. In addition, licensure is currently required by fifteen states. States requiring licenses administer their own examinations.

Employment

Medical technologists work in hospitals, clinics, private clinical laboratories and public and private research laboratories. Since clinical laboratories are usually staffed around the clock, there are good opportunities for part-time or flexible work schedules. Employment opportunities are excellent throughout the country for specialists or those with advanced degrees, because there is a shortage of these highly qualified technologists. The labor market varies for general technologists. Large laboratories prefer or require persons with advanced degrees for supervisorial positions.

Career Contingencies

Registration and licenses may be renewed indefinitely; however, there is indication that continuing education will be required soon for relicensure and reregistration. Because of the rapid technological advances in the field of clinical medicine, returning technologists will have difficulty finding employment without some refresher training in new procedures and techniques. Career advancement is extremely limited without further education beyond entry level requirements. Medical technologists with managerial experience may have opportunities to enter administration in smaller hospitals and clinics. Since state requirements vary, technologists may or may not be qualified for employment in all geographical locations and should check with state boards of vocational standards or with their professional associations. Many states have local organizations similar to the California Association of Medical Laboratory Technologists (CAMLT) that can provide regional information.

FOR FURTHER INFORMATION

Associations

American Society of Clinical Pathologists
710 South Wolcott Avenue
Chicago, IL 60612

American Society of Medical Technologists
Suite 1600 Hermann Professional Bldg.
Houston, TX 77025

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American Association of Junior Colleges (1969) "Guide for Program Planning: Medical Laboratory Technician." Washington D.C.: the Association.

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MEDICINE

Description

Doctors of medicine (M.D.'s) prevent and diagnose disease and treat ill people with drugs, surgery and other accepted cures. Medicine is increasingly specialty-oriented and general practitioners are becoming rare. Younger physicians who wish to establish primary care practices specialize in family medicine, internal medicine, pediatrics or obstetrics and gynecology to provide an array of services to their patients. Other specialists, such as surgeons and anesthesiologists, usually see patients only on referral from other physicians and perform a limited number of medical services for each patient.

The number of physicians relative to other health care workers has steadily declined since the turn of the century. Today, the physician must work in cooperation with a growing number of new health professionals and paraprofessionals. Increasingly, the physician is part of a health care team, and must often supervise and coordinate the activities of other team members.

Within medicine there are two levels of career choice. The first is the selection of a specialty. After entering a specialty, there are several career tracks. Most physicians engage in direct patient care. Some choose careers in administration and others become academic researchers and/or clinicians.

Education

Admission to medical school requires a minimum of three years of undergraduate college education; however, four years is the norm. The physician's formal training usually takes eight years after high school graduation, and for those entering specialties additional years of residency training (on-the-job) are required (see Medical Specialties). There are currently 123 accredited medical schools in the United States. A growing number of American students pursue their medical training abroad.

Educational Expenses

Medical education is very costly. The very minimum cost for four years of college followed by four years of medical school is now around $20,000 including tuition and fees in a public institution and very modest living expenses. The total cost is considerably higher in private institutions or if the student lives in off-campus accommodations that are generally more expensive than dormitory rooms. Although residency training must be completed after receiving the M.D. degree, this stage of the training generally provides a moderate salary.

Financial assistance is available for medical education; loans are often relied upon to complete the training (see Chapter 6).

Licensure

The District of Columbia and all states require a license to practice medicine, and most states have reciprocal agreements allowing physicians geographical mobility. Licensed physicians can practice any medical specialty but those who complete residency requirements and pass specialty examinations are designated as board certified. The requirements stated for the specialties listed in this chapter refer to education required to be eligible to take specialty board examinations. Many hospitals and clinics require specialists to be board certified to practice in their facilities. Currently approximately 20 states require continuing education for physicians. Some medical specialty societies are requiring continuing education for membership in the society. The majority of states are now just beginning to set policy directed at continuing education for relicensure.

Entry and Reentry

Although there are no stated age limits for entering medical school, students over thirty are rarely accepted. A very high grade-point average in college premedical studies is essential to be admitted. In addition, students must take the Medical College Admissions Test (see Chapter 6).

Students are usually required to attend medical school full time, but in recent years residency training has been made available on a part-time basis. Women who plan to have families following medical school graduation, or who for other reasons choose to take their specialty training more slowly, can now do so in most, but not all, specialties.

Medicine offers many opportunities for part-time practice, either privately or in health institutions. Although relatively few women physicians leave paid employment entirely, those who do so have excellent opportunities for volunteer medical work.

Because medicine changes so rapidly, particularly in the more technical specialties, absence from active practice places women in a disadvantageous position when seeking employment or returning to private practice. With the increase in continuing education programs for relicensure, however, there are more opportunities for undertaking refresher courses. Some women choose to undertake residency training later in life, for the first time or as a refresher program. Opportunities for mid-career residencies are often in public institutions such as state mental hospitals and veterans hospitals.

Employment

Employment opportunities are excellent. Physicians have the highest income of all health professionals. Physicians are in demand in private, solo and group practice, in private and public institutions and in research and teaching. There are opportunities to combine clinical practice with teaching, research and/or administration, or pursue these endeavors as primary career lines. Current shortages exist in rural settings and inner cities.

Career Contingencies

Geographical mobility may pose problems for the woman physician. If she plans to build a private practice, it is important to remain in a single geographical location for a long period of time to develop the informal channels of referral and hospital affiliation that are essential for independent practice. However, because most states have reciprocal licensing agreements, it is possible to find employment when relocating to another state.

Women physicians are more likely than men to enter public health or salaried positions in clinics or hospitals where they have regular, predictable hours. The income of physicians in these settings is lower than in most other types of practice.

FOR FURTHER INFORMATION

Associations

American Association of Medical Colleges (AAMC)
1 Dupont Circle
Washington, D.C. 20036

AAMC Publications

"AAMC Curriculum Directory"
"Medical School Admission Requirements"
"The New MCAT Student Manual"

American Medical Association (AMA)
535 N. Dearborn St.
Chicago, IL 60610

American Medical Student Association
14650 Lee Road
P.O. Box 131
Chantilly, VA 22021

American Medical Women's Association (AMWA)
1740 Broadway
New York, NY 10019

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Nadelson, Carol and Malka T. Notman (1972) "The Woman Physician" Journal of Medical Education 47 (March) pp. 176-183.

Spieler, Carolyn (1976) Women in Medicine, Report of a Macy Conference. New York: Josiah Macy, Jr. Foundation.

Walsh, Mary Roth (1977) Doctors Wanted: No Women Need Apply. Sexual Barriers in the Medical Professions, 1835-1975. New Haven: Yale University Press.

Women's Action Program (1976) An Exploratory Study of Women in the Health Professions Schools. Vol. 2, Medicine - U.S. Department of Health, Education, and Welfare. Final report pursuant to Contract HEW-OS-74-291 prepared by Urban and Rural Systems Associates (URSA), San Francisco, California.

MEDICAL SPECIALTIES

Allergy and Immunology

Allergists and immunologists are concerned with all aspects of allergy and applied immunology. The clinical diagnosis and treatment of atopic diseases in children and adults are the primary functions of these specialists. An M.D. degree and two years of training in internal medicine or pediatrics, plus a two-year residency in allergy and immunology,are required.

Association

American Association of Clinical Immunology and Allergy
P.O. Box 912, DTS
Omaha, NE 68101

Anesthesiology

Anesthesiology is the specialty concerned with rendering patients insensitive to pain and emotional stress during surgical, obstetrical and certain other medical procedures; supporting life functions during anesthetic and surgical manipulations; the clinical management of unconscious patients; the management of problems in pain relief; the management of problems in cardiac and respiratory resuscitation; the application of special methods of inhalation therapy and the clinical management of various fluid, electrolyte and metabolic disturbances. An M.D. degree, two or preferably three years of residency training, plus two years of practice in the specialty are required.

Association

American Society of Anesthesiologists
515 Busse Highway
Park Ridge, IL 60608

Colon and Rectal Surgery

This is a specialized branch of surgery dealing with the colon and the rectum. After graduation from an accredited medical school, six years of surgical residency training plus two years in colon and rectal surgery are required.

Association

American Society of Colon and Rectal Surgeons
615 Griswold, Suite 516
Detroit, MI 48226

Dermatology

Dermatology is concerned with the diagnosis and treatment of skin disorders. This specialty requires extensive knowledge of other medical specialties because dermatological disturbances are often associated with other disease states. Graduation from an accredited medical school, and three or more years of residency training are necessary for this specialty.

Association

American Academy of Dermatology
2550 Northwest Flanders St.
Portland, OR 97201

Family Practice

Family practitioners are trained to perform the traditional physician functions: prevention, diagnosis, treatment and rehabilitation. They are also involved in family dynamics and therapy and community medicine. Frequently they provide routine obstetrical, pediatric and geriatric care, referring complicated problems to other specialists when necessary. An M.D. degree, one year of internship, and three years of residency training are required.

Association

American Academy of Family Practitioners
Volker Boulevard at Brookside
Kansas City, MI 64112

Internal Medicine

Internal Medicine is concerned with the diagnosis and treatment of ailments of internal organs such as the heart, lungs, kidneys and liver. This specialist must have the knowledge of a generalist in order to treat organs belonging to the various body systems. The internist works primarily with adults, treating

problems of aging and chronic and acute diseases such as diabetes, cardiovascular disease, pulmonary and gastrointestinal dysfunctions. Graduation from medical school and approximately five years of internship and residency training are required. During residency training many internists concentrate in a subspecialty such as cardiovascular disease, hematology or rheumatology.

Association

American Society of Internal Medicine
3rd at Market
525 Hearst Building
San Francisco, CA 94103

Neurological Surgery

Neurosurgeons treat, by surgical means, diseases (e.g. tumors, cerebral aneurysms) and congenital defects (e.g. hydrocephalus) of the brain, spinal cord, peripheral and autonomic nervous systems, and structures that cover them. An M.D. degree, internship, one year of general surgery residency training and five additional years of neurosurgery residency training are standard.

Association

Congress of Neurosurgeons
428 E. Preston St.
Baltimore, MD 21202

Neurology

Neurologists diagnose and treat diseases of the central nervous system. The problems treated and/or diagnosed include multiple sclerosis, Parkinson's disease, epilepsy, stroke, headache and other pain problems, viruses as they relate to the central nervous system and brain tumors. Neurologists employ both medical and surgical treatments. An MD. degree, one year of general clinical training and four years of residency are required for certification in neurology. The board currently issues certification in neurology, psychiatry and neurology and child neurology.

Association

American Academy of Neurologists
4015 W. 65th St., Suite 302A
Minneapolis, MN 55435

Nuclear Medicine

This branch of medicine involves the use of radioactive materials for diagnostic and therapeutic purposes. Nuclear medicine specialists engage in organ imaging, biologic specimen analysis and the development and utilization of chemotherapy. An M.D. degree, board certification in internal medicine, pathology or radiology and two additional years of training in nuclear medicine are standard.

Association

Society of Nuclear Medicine
475 Park Ave. S.
New York, NY 10016

Obstetrics and Gynecology

Obstetrics and gynecology is the branch of medicine that deals with the care of mothers during and after pregnancy, and with the delivery of infants. The obstetrician-gynecologist also provides care for normal and abnormal conditions of the female reproductive organs including contraception, abortion, sterilization, artificial insemination, hysterectomy and treats diseases particular to women. Graduation from medical school, one year of internship, plus three years of residency training are required.

Association

American Association of Obstetrics and Gynecology
171 Harrison Ave.
Boston, MA 02111

Ophthalmology

Ophthalmologists diagnose and treat diseases of the eye both medically and surgically. Ophthalmologic surgery is highly specialized, often involving the use of magnifying lenses and complex chemical and electrophysiologic techniques. An M.D. degree, a rotating internship, and two to four years of residency training is standard.

Association

American Association of Ophthalmology
1100 17th St., N.W.
Washington, D.C. 20036

Orthopedic Surgery

Orthopedic surgery is the branch of medicine specializing in surgery of bones and joints to correct congenital defects and deformities resulting from fractures, dislocations and disease. Educational requirements include graduation from an accredited medical school, internship, one year of surgical residency and three years of orthopedic surgery residency training.

Association

American Orthopedic Association
430 N. Michigan Ave.
Chicago, IL 60611

Otolaryngology

Otolaryngologists diagnose and medically and/or surgically treat diseases of the ear, nose, mouth, pharynx, larynx and neck. Educational requirements

include an M.D. degree, internship, two year residency in general surgery and four year residency in otolaryncology.

Association

American Laryngological Association Inc.
Route #1
Pittsford, VT 05763

Pathology

Pathology is the science that studies aberrant and abnormal processes in the body, and changes in organs, tissues and cells that result from disease. Physician pathologists use complex instruments and procedures to diagnose diseases and determine causes of death or disability. There are seventeen subspecialties recognized in anatomical and clinical pathology. Typically, pathologists do not work directly with living patients, but work as consultants to other physicians. Some are public coroners or medical examiners. Training in pathology stresses the basic laboratory sciences. Graduation from an accredited medical school, an internship, and three years of residency in pathology are required.

Association

American Society of Clinical Pathology
2100 W. Harrison St.
Chicago, IL 60612

American Association of Pathologists
9650 Rockville Pike
Bethesda, MD 20014

Pediatrics

Pediatrics is the branch of medicine that is concerned with both the normal development and the diseases of infants, children and adolescents. As primary care physicians, pediatricians frequently counsel parents regarding child care and refer patients to other specialists for the treatment of serious diseases requiring surgery (e.g.,orthopedists, otolaryngologists). Graduation from an approved medical school and three years of residency training in pediatrics are standard. Subspecialization in pediatric allergy and pediatric cardiology are formally recognized.

Association

American Academy of Pediatrics
Box 1034
Evanston, IL 60204

Physical Medicine and Rehabilitation

A physiatrist treats patients with congenital deformities and/or disabilities arising from accidents or injuries. These specialists attempt to correct or reduce physical impairments, and help patients adjust to handicaps and learn

to fully utilize their remaining capabilities. Physiatrists are part of a team enterprise, for their patients often need the services of many different health care workers, including other physicians, social workers, therapists and home health aides. An M.D. degree, one year of internship, and three years of residency are required. In many settings, clinical practice can be substituted for part of the formal residency training.

Associations

American Academy of Physical Medicine and Rehabilitation
Suite 922
30 N. Michigan Avenue
Chicago, IL 60602

American Congress of Rehabilitation
30 N. Michigan Avenue
Chicago, IL 60602

Plastic Surgery

Plastic surgeons specialize in plastic and reconstructive surgery of all parts of the body. Graduation from an accredited medical school, three years of general surgery residency, and a two-year residency in plastic surgery are required.

Association

American Association of Plastic Surgeons
Emory University Affiliated Hospital
Division of Plastic Surgery
Atlanta, GA 30303

Preventive Medicine

Physicians practicing preventive medicine are considered environmental health specialists. This may include public health in that the physician examines health problems of the community as a whole, and in the course of practice uses the services of many other specialists such as sanitarians, nurses, and food and drug inspectors. Preventive medicine is concerned with alcoholism, drug control, early diagnosis of disease, air pollution and other threatening community health problems. Some specialists carry out research in fields such as virology and tropical diseases. (See Chapter 5: Public Health Specialties.) Graduation from medical school and a one-year residency in preventive medicine are standard. Subspecialties recognized for certification include public health, aerospace medicine, occupational medicine and general preventive medicine.

Association

American College of Preventive Medicine
801 Old Lancaster Rd.
Bryn Mawr, PA 19010

Radiology

Radiologists deal with the diagnostic and therapeutic applications of ionizing and other forms of radiant energy, including roentgen and gamma rays, infrared rays and ultrasonic waves. There are twelve subspecialties within this field that emphasize diagnostic and therapeutic radiation, physics and radiobiology.

Association

American College of Radiology
20 N. Wacker Drive
Chicago, IL 60606

Psychiatry

Psychiatrists diagnose and treat mental illness and emotional disturbances, and consult with other physicians and health care providers concerning psychological factors in medical illness. Psychiatrists frequently act as consultants to the law courts and work closely with other mental health professionals including psychologists, social workers, psychiatric nurses, and rehabilitation therapists. An M.D. degree, one year of general clinical training and four years of residency are required for certification. The board currently issues certification in psychiatry, psychiatry and neurology, and child psychiatry.

Association

American Psychiatrists Association
1700 18th St. N.W.
Washington, D.C. 20009

Surgery

Surgeons repair and/or remove organs damaged by disease, injury and/or congenital defects. Surgery is commonly performed on the gastrointestinal tract, the breast, head and neck, vascular system and endocrine system. Other surgical specialists perform surgery in their areas of expertise. For example, gynecologists typically perform hysterectomies, urologists operate on the kidneys, otolarngologists perform ear surgery. Graduation from an accredited medical school and six years of surgical residency are standard. Subspecialization in cardiothoracic, vascular and general surgery can be pursued.

Associations

American Surgical Association
5323 Harry Hines Blvd.
Dallas, TX 75235

American College of Surgeons
55 E. Erie St.
Chicago, IL 60611

Thoracic Surgery

Thoracic surgery is a specialized branch of medicine dealing with acquired and congenital disease within the thoracic cavity, that includes the heart, lungs, esophogus, mediastinum, and the aorta and its primary branches. Graduation from medical school, a six-year residency in surgery, plus 24 months of training in the specialties of thoracic and cardiovascular surgery are standard.

Association

American Association for Thoracic Surgery
6 Beacon St., Suite 620
Boston, MA 02108

Urology

Urology includes the study and management of congenital anomalies, injuries, infections, renal insufficiencies, neoplastic diseases of the prostate, bladder, kidneys and testes. Uroiogists treat diseases of the male reproductive organs. Graduation from an accredited medical school, one year of internship, a one-year residency in general surgery, and a three-year residency in urology are standard.

Association

American Urological Association, Inc.
1120 N. Charles St.
Baltimore, MD 21201

OSTEOPATHIC MEDICINE

Description

An osteopathic physician treats illness and injury combining manipulative therapy with the use of drugs, operative surgery, physical therapy and other methods depending on individual diagnosis. Osteopathy is based on the philosophy of treating the patient as a total unit, emphasizing the relationship between the musculoskeletal and organ systems and body functions. Emphasis is on primary care and general practice.

Education

Admission into a college of osteopathic medicine requires three to four years of undergraduate education; a bachelor of science in premedical areas is preferred. The Doctor of Osteopathy (D.O.) is awarded after completing four years of osteopathic college including study of basic sciences and clinical medicine. Most D.O.'s enter general practice; the minimum training beyond the D.O. is a one-year rotating internship. Few D.O.'s undertake specialty training although, after completing the internship, two to four-year residencies can be taken in anesthesiology, dermatology, internal medicine, neurology/psychiatry, obstetrics/gynecology, ophthalmology, otorhinolaryngology, pathology, pediatrics, proctology, radiology, rehabilitation medicine and surgery.

Osteopathic specialties are much like those found in allopathic medicine, incorporating, however, the osteopathic philosophy of interrelationship of structure and function of the human body.

Licensure

All states require licensure granted after receiving the D.O. degree from an accredited osteopathic college and passing a state licensing examination; most states also require the completion of one year of internship for licensure. Fifty states and the District of Columbia grant unlimited practice rights (identical to those granted M.D.'s). Many states have reciprocal licensing agreements; however, conditions vary from state to state. Specialists are certified by the individual specialty board.

Employment

Osteopathic medicine is usually community-based, and practitioners tend to work in small clinic facilities or their own offices and may be affiliated with local or regional hospitals. Osteopathic physicians also work in osteopathic hospitals and in allopathic hospitals approved by the Joint Commission on Accreditation of Hospitals.

Career Contingencies

Because most D.O.'s are in solo general practice, long hours are common and there are relatively few opportunities for part-time employment. Women contemplating geographical relocation should check with the state Board of Osteopathic Examiners for individual licensing requirements.

FOR FURTHER INFORMATION

Associations

American Osteopathic Association
212 East Ohio Street
Chicago, IL 60611

National Board of Examiners for Osteopathic Physicians and Surgeons
22 South Washington, Suite 102
Park Ridge, IL 60068

Specialty Associations

American Academy of Osteopathy
2630 Airport Road
Colorado Springs, CO 80910

American College of General Practitioners in Osteopathic Medicine and Surgery
2500 West Devon Avenue, Suite 311
Des Plaines, IL 60018

American College of Neuropsychiatrists
515 West Grand Avenue
Dayton, OH 45405

American Osteopathic Academy of Sclerotherapy, Inc.
7139 Merriman Road
Garden City, MI 48135

American College of Osteopathic Internists
3533 Ryan Avenue
Philadelphia, PA 19136

American College of Osteopathic Obstetricians and Gynecologists
900 Auburn Road, Suite 103
Pontiac, MI 48057

American College of Osteopathic Pediatricians
P.O. Box 340388
Coral Gables, FL 33134

American College of Osteopathic Surgeons
Ponce American Building
4601 Ponce De Leon Boulevard, Suite 21
Coral Gables, FA 33146

American Osteopathic Academy of Orthopedics
133 East Eighth Street
Kansas City, MI 64106

American Osteopathic Academy of Sports Medicine
5409 17th Avenue, N.W.
Seattle, WA 98107

American Osteopathic College of Allergy and Immunology
39880 Van Dyke
Sterling Heights, MI 48078

American Osteopathic College of Anesthesiologists
2511 Kenwood Lane
Memphis, TN 38134

American Osteopathic College of Dermatology
631 N. W. 70th Terrace
Plantation, FL 33317

American Osteopathic College of Pathologists
2160 Idlewood Road
Tucker, GA 30084

American Osteopathic College of Proctology, Inc.
840 East Mount Hope Avenue
Lansing, MI 48910

American Osteopathic College of Radiology
800 West Jefferson Street
Kirksville, MO 63501

American Osteopathic College of Rehabilitation Medicine
1720 East McPherson Street
Kirksville, MO 63501

American Osteopathic College of Rheumatology, Inc.
Box DOC
Maybrook, NY 12543

Osteopathic College of Ophthalmology and Otorhinolaryngology
405 Grand Avenue
Dayton, OH 45405

References

"Fact Sheet" published twice yearly by the Editorial Department, American Osteopathic Association.

Women's Action Program (1976) An Exploratory Study of Women in the Health Professions Schools. Vol. 3 Osteopathic Medicine. U.S. Department of Health, Education, and Welfare. Final report pursuant to Contract HEW-OS-74-291 prepared by Urban and Rural Systems Associates (URSA), San Francisco, California.

NUCLEAR MEDICINE TECHNOLOGY

Description

The nuclear medicine technologist works with a physician using radioisotopes for diagnosis and treatment. The work involves imaging of radioisotopes in the body (either injected or given orally) and measuring the radioactivity in *in vitro* samples (samples outside the body, i.e.,blood in a test tube) using chemical analysis. The field rapidly changes with technological advances. The development of a specialty board in nuclear medicine has also fostered the growth of nuclear medical technology as a separate occupation.

Education

Medical technologists, radiology technologists, registered nurses and holders of bachelor's degrees in science are presently accepted for a 12-month program approved by the American Medical Association leading to eligibility for national certification. On-the-job training programs are still available in some locations. Eventually, only graduates of the formal training programs will be eligible for entry into the field.

Licensure

National certification is awarded to those who pass an examination administered by the Nuclear Medicine Technology Certification Board. Currently, states do not issue licenses.

Employment

Technologists work in hospitals, medical centers and clinics. They also work as sales representatives for companies dealing with equipment and services.

Employment opportunities throughout the country are good since the field is still new.

Career Contingencies

Because the field of nuclear medicine is expanding rapidly, specialization is developing and salaries and educational requirements are likely to increase. Reentry after withdrawal from the field is difficult, as in the other fields where technology changes. Advancement in the field is possible with additional training and/or experience in managing nuclear medicine laboratories. Teaching in nuclear medicine training programs is another career line. Men tend to dominate the sales areas of the field, but this is changing.

FOR FURTHER INFORMATION

Association

Technologist Section, Society of Nuclear Medicine
475 Park Avenue, South
New York, NY 10016

NURSING

Description

Registered nurses have the primary responsibility for many aspects of patient care and administration of the health care system. They provide direct patient care in hospitals, clinics, private offices and homes where they often supervise the work of other health workers. Some nurses take health histories, perform physical examinations and make health assessments.

Most registered nurses are generalists, although staff nurses in hospitals often develop areas of expertise through on-the-job training and continuing education courses. In addition to the developing administrative and coordinative positions available in contemporary nursing, there are other extended roles. With advanced education, nurses can become specialists and are designated as such in a number of ways.

The clinical nurse specialist and nurse practitioner are terms that developed as nurses expanded their traditional role. Nursing schools affiliated with colleges and universities have encouraged the development of these specialists, and graduate programs prepare these nurses in a wide variety of areas within the health field. Some of these specialty areas are coronary and intensive care, pediatrics, psychiatry, geriatrics, school health, emergency room and critical care (see nursing specialties).

Each of the fifty states and the District of Columbia has a nurse practice act and a medical practice act. Together they define the legal boundaries for the practice of professional nursing. Provisions have been added to thirty-two state nurse practice acts and one medical practice act to expand registered nurses' roles. Board regulations, expanded definitions of nursing, and special legislation pertaining to nurse-midwives and anesthetist regulations are all used to facilitate role expansion (Bullough 1975, p. 168).

Recent expansion of the nurse's role has been influenced by changes in nursing education, changes in functions related to medical technology, growth of the career ladder concept, the shortage of primary care physicians, the development of physicians' assistant programs, the changing age distribution of the population, and the women's liberation movement (Bullough 1976). Although there is a continuing need for skilled nurses to care for the acutely sick, and an increase during the past ten years in clinical specialization, the major trend in the field is toward community-based primary care (Fitzpatrick 1977). To fill this need, nurse practitioners are increasingly being prepared in the areas of preventive care and health maintenance as well as ambulatory and long-term care. Psychiatric nursing specialties are available for nurses with a M.S. degree plus 3,000 hours of advanced education. Currently, this is a well funded area of nursing and stipends for advanced training are readily available.

Education

Efforts to professionalize nursing have led to a growing emphasis on university education rather than hospital training, a trend that has been promoted by federal monies directed toward college and university nursing education. While three year hospital programs technically qualify registered nurses for employment, the trend is toward associate degree programs in community colleges and baccalaureate programs in colleges and universities. The hospital diploma, the A.A. degree and the B.S. degree from an accredited institution all qualify individuals to take the registered nurse examination. Professional nurses increasingly pursue the baccalaureate degree as the minimal professional degree; graduate education at the master's and doctoral levels are increasingly required for teaching and administrative positions as well as research and specialized clinical practice. Admission for graduate nursing education requires a B.S. degree from a NLN accredited nursing program. Some colleges and universities have developed career ladder programs that offer registered nurses with A.A. degrees or diplomas opportunities to complete the B.S. degree. Openings in such programs, however, are limited, and persons who intend to complete the B.S. are strongly advised to enroll in a B.S. program initially to avoid having to repeat course work. Continuing education programs also offer advanced training in nursing specialties, leading to nurse practitioner certification. These programs also allow nurses to meet state continuing education requirements for relicensure.

Educational Expenses

The cost of different routes to registered nursing vary widely. An A.A. degree in a community college is tuition-free whereas state colleges and universities charge from several hundred to over $3,000 tuition per year; costs in private institutions are higher.

Licensure

It is necessary to hold a state license to practice nursing. Licensing is obtained by passing the state licensing examination and having educational qualifications approved by the Board of Nursing Education and Nursing Registration. Requirements vary among states.

Employment

Registered nurses work in many settings. Most are employed in hospitals, clinics and private doctors' offices. Others work in schools, public health agencies, private voluntary agencies, and colleges and universities. Along with role expansion and the growth of more militant professionalism and unionism, nurses' salaries have increased rapidly in the past decade. In most areas, the demand for nurses remains quite steady.

Entry and Reentry

Most women enter nursing school when they are quite young. In recent years, however, women in their mid to late thirties have begun to see nursing as a desirable career, and have entered nursing schools in increased numbers. Graduate work in nursing is generally undertaken after gaining experience in the field.

Women in nursing often leave paid employment when their children are young. Some work as volunteers to keep up their skills and contacts in the field. Because nursing changes rapidly, nurses who leave the field for more than a few years may find reentry somewhat difficult unless they take refresher courses. A growing number of colleges and universities now offer continuing education and reentry courses for nurses.

Career Contingencies

There is often little difference in technical tasks nurses perform, but those with broader educational backgrounds assume greater responsibility for assessing patient needs and providing comprehensive nursing care. With the development of new health occupations such as physicians' assistants and nurse practitioners and new areas and levels of specialization in nursing, power and status problems have arisen. Today, the various branches and levels of nursing and the medical profession are reexamining their respective roles.

FOR FURTHER INFORMATION

Associations

National League for Nursing (NLN)
10 Columbus Circle
New York, NY 10019

American Nurses' Association (ANA)
2420 Pershing Road
Kansas City, MO 64108

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Fitzpatrick, Louis M. (1977) "Nursing." Signs: A Journal of Women in Culture and Society 2:4 (Summer) pp. 818-34.

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Kisker, Katherine L. and Ellen Roller (1972) "Registered Nursing." Introduction to Health Professions, ed. Ruth F. Odgers and Burness G. Wenberg, pp. 47-53. St. Louis: The C.V. Mosby Company.

Koffman, Rosalyn and others (1971) "From Diploma or Associate Degree to Bachelor's Degree." American Journal of Nursing 71 (Nov) pp. 2184-86.

Olesen, Virginia L. and Elvi W. Whittaker (1968) The Silent Dialogue, A Study in the Social Psychology of Professional Socialization. San Francisco: Jossey-Bass.

NURSING SPECIALTIES

Nurse Practitioner

Although nurse practitioners are recognized specialists in many states, educational requirements and state regulations vary. Nurse practitioners are registered nurses who usually work on a team with a physician in primary care settings, or may work with less direct physician contact in underserved areas where there are few, if any, health care facilities or physicians available. In rural areas, nurse practitioners diagnose, treat and prescribe drugs for routine health problems in consultation with a physician (often by phone); more serious problems are screened for referral to physicians. Common areas of employment include pediatrics and maternity, family health, women's health, adult health and geriatrics.

Educational requirements vary from state to state. For specific information regarding educational requirements and state regulations, contact the state board of nurse registration. For entry into nurse practitioner training programs, a baccalaureate degree is increasingly required. A registered nurse with a baccalaureate degree and the requisite experience (usually two years) can become a nurse practitioner in a specialty area and at the same time earn a master's degree in a university graduate program. Some bachelor's degree programs in registered nursing prepare students to function as nurse practitioners upon graduation.

Nurses can also undertake nurse practitioner training on a part-time basis through continuing education programs. The length of continuing education programs varies by specialty and by the amount of time a person can devote to the program.

Nurse practitioners are employed in public and private practices. Opportunities are greatest in rural and underserved inner city areas.

Nurse Specialist

Nurse specialists usually work on multidisciplinary teams in hospitals and clinics. Requirements for nurse specialists vary widely from state to state, and are currently in flux. The American Nurses Association (ANA) defines a nurse clinician as a registered nurse who, through a continuing education program, receives a certificate in a specialized area; a clinical nurse specialist receives certification in a clinical area or specialty through a master's degree program in a college or university. Currently these distinctions are a matter of custom, not law, and only a few states recognize ANA definitions. Assertive attempts aimed at standardizing and clarifying educational requirements for the various types of nursing specialists are currently underway. At the American Nurses' Association Conference in June 1974, the ANA Congress stated that a clinical nurse specialist must have a master's degree to be called a specialist (Bullough 1975, p. 119). For current educational and certification requirements, contact the State Board of Nursing Registration, the ANA, or the National League for Nursing (NLN). Accredited educational programs are listed in each June issue of Nursing Outlook, a NLN publication.

Reference

Bullough, Bonnie (1975) The Law and the Expanding Nursing Role. New York: Appleton-Century-Crofts.

Nurse Anesthetist

Nurse anesthetists render patients insensitive to pain and emotional stress during surgical, obstetrical and other medical procedures. Nurse anesthetists, who have been replaced by physician anesthesiologists in many areas, work closely with physicians in the management of anesthetized patients.

In addition to their RN training, nurse anesthetists complete a two year program, usually given in hospitals. Nurses who administer anesthesia may be certified by the American Association of Nurse Anesthetists. The legal status of nurse anesthetists has been unclear because they often carry out diagnostic and treatment functions that fall beyond the scope of some state nurse practice acts. However, with the expansion of the nursing role, the legality of nurse anesthetist practice should be resolved in the near future (Bullough 1975, p. 16).

Association

American Association of Nurse Anesthetists
111 East Wacker Dr.
Chicago, IL 60601

Reference

Bullough, Bonnie (1975) The Law and the Expanding Nursing Role. New York: Appleton-Century-Crofts.

Lang, Thelma (1972) "Nurse Anesthesiology." Introduction to Health Professions, ed. Ruth F. Odgers and Burness G. Wenberg, pp. 53-56. St. Louis: The C.V. Mosby Company.

Nurse-Midwife

The nurse-midwife is a registered nurse who, through additional clinical experience and study, is qualified to provide health care services to pregnant and post partum patients in conventional health care settings. Midwives usually work in conjunction with obstetricians, general practitioners, and the house staff of clinics and hospitals, caring for women during normal pregnancy, labor, delivery and the postpartum period of the maternity cycle. State laws vary regarding the extent to which nurse-midwives can practice independently or must work under the supervision of a physician.

Educational requirements vary from state to state. In some states a registered nurse can receive certification as a midwife by completing an eight to twelve month course of study and supervised clinical experience. The trend is to obtain a master's degree in a one to two year program given by a college or university.

Certification requirements vary from state to state but, increasingly, registered nurses who have completed a course of study recognized by the American College of Nurse-Midwives can take the certification examination. Currently twelve states have laws for separate licensure for nurse-midwives, and most other states have specific requirements for practice.

Association

National Midwives Association
Box 163
Princeton, NJ 08540

The American College of Nurse-Midwives
1012 14th St., N.W.
Washington, D.C. 20005

National Association of Parents and Professionals
for Safe Alternatives in Childbirth (NAPPSAC)
Box 1307
Chapel Hill, NC 27514

References

Cassels, Jane and Harold R. Collen (1972) "Introduction of Midwifery via Prepaid Group Practice." American Journal of Public Health 12 (March) pp. 354-60.

Journal of Nurse-Midwifery. Washington, D.C.: American College of Nurse-Midwives.

Sablosky, Ann (1976) "The Power of the Forceps: A Comparative Analysis of the Midwife, Historically and Today." Woman and Health (Feb) pp. 10-13.

Shaw, Ethelrine (1972) "Midwifery." Introduction to Health Professions, ed. Ruth F. Odgers and Burness G. Venberg, pp. 57-59. St. Louis: The C.V. Mosby Company.

OCCUPATIONAL THERAPY

Description

Occupational therapists evaluate the physical and psychological limitations, as well as other environmental circumstances, of the individual patient. They plan a program of therapeutic activities to create or restore the patient's skills and behavior to live a productive life, including meeting personal and family role demands, work and play needs and participating in community activities. This may be accomplished by(1) daily living tasks such as self-care and homemaking;(2) functional means including coordination and dexterity activities, use of proper limb prostheses, adapted equipment and orthoses for upper limbs; (3)manual crafts and industrial skills;(4) educational methods of perceptual testing and training, handwriting, typing and prevocational training. Occupational therapists carry out treatment under medical referral from physicians. They work closely with social workers, rehabilitation counselors, nurses and other members of the health team.

Education

Four years of college leading to a bachelor's degree in occupational therapy is required. A few colleges offer a one and a-half-year certificate course for individuals holding a bachelor's degree in other fields; approximately ten colleges and universities offer a two year master's program. Students are also required to have six months to a year of supervised clinical training to be eligible for the national registration examination given by the American Occupational Therapy Association to become O.T.s.

Licensure

Licenses are not required in any state, but employers require therapists to be registered as O.T.s.

Employment

Although currently the majority of occupational therapists work in hospitals and clinics, the trend is toward planning and conducting programs in long term care facilities, rehabilitation centers, schools and camps for disabled children, community health agencies and in homes. They also teach and conduct research in educational and research institutions.

Career Contingencies

Age is not a serious barrier in this field; opportunities for employment may be somewhat limited, depending on the geographical location and the local labor market. Part-time work or flexible hours are possible, as well as opportunities for consultation and program planning. Reentry is difficult because of the advances and new trends in the discipline. Therapists who have been out of the field for years or let their registration lapse must retake the registration examination to use the title O.T.R. Volunteering or working as an assistant to an O.T.R. carrying out rehabilitative programs, giving standard evaluation tests and teaching patients can be used to bring skills and knowledge up to date.

FOR FURTHER INFORMATION

Associations

American Occupational Therapy Association
6000 Executive Blvd., Suite 200
Rockville, MD 20852

References

Crampton, Marion W. (1971) "Licensing of Occupational Therapist." The American Journal of Occupational Therapy 25 (May-June) pp. 206-09.

Worley, Scott and C. Kay Buckey (1972) "Occupational Therapy" in Introduction to Health Professions, ed. Ruth Odgers and Burness G. Wenberg, pp. 119-26. St. Louis: The C.V. Mosby Company.

OPTOMETRY

Description

The optometrist diagnoses and prescribes lenses and other optical aids to correct vision. Visual training aids and exercises may also be prescribed to preserve or correct vision. Although some of these same services are provided by ophthalmologists (physician specialists), optometrists should not be confused with physicians who are primarily concerned with the diagnosis and treatment of diseases of the eye using drugs and surgery. However, some states have expanded practice acts to allow optometrists to use drugs in diagnosis and refractive activities.

Education

Four years of professional education in an approved school of optometry leading to a Doctor of Optometry (O.D.) degree is required. Optometry school applicants for admission must have completed two to three years of preprofessional college education, although the majority have bachelor's degree Graduate education (beyond the O.D.) takes two forms: academic work leading to a M.S. or Ph.D. degree in physiological optics offered by university schools of optometry for teaching and research, or postdoctoral training leading to specialization and specialty certification. Some optometrists specialize in specific areas such as low vision, contact lens practice, vision therapy, developmental vision, geriatrics or pediatrics.

Licensure

Graduates must pass individual state licensing examinations. Some, but not all, states have reciprocal licensure agreements. Some states require internships of one or more years with a licensed optometrist in order to take the licensing examination.

Employment

Most optometrists are in private practice, but the trend is toward group practice or partnership between optometrists each of whom specializes in a specific area. Some optometrists work with or for other ophthalmologists; the latter is more common since ophthalmologists usually supervise the optometrist's work. Optometrists may also teach, consult or perform research.

Career Contingencies

The cost of setting up a solo practice can be high -- a very rough current estimate would be $34,000 to $40,000 for new equipment; however locating good used equipment lowers this cost substantially. Women are entering the field in larger numbers than in the past, but may have difficulty obtaining the more desirable placements. Many women have been employed as assistants to ophthalmologists because of the tenuous relationship between ophthalmologists and optometrists. However, the optometrist has begun to be recognized as a primary care provider and is playing a more important part in educational development of visual performance. There are good opportunities for part-time practice or employment. Rapidly changing technology and the improved image of the profession may pose problems for the reentering woman, unless she has maintained up-to-date skills and knowledge.

FOR FURTHER INFORMATION

Associations

American Optometric Association
7000 Chippewa St.
St. Louis, MO 63119

References

Aubuchon, Marie Therese (1974) "The Woman O.D." Journal of the American Optometric Association 45:4 (Apr.).

Gallup, Edith (1912) "Women as Optometrists." The Optical Journal and Review 22 (January 18) pp. 230-35.

Green, Marcia K., "Women in Optometry." Journal of the American Optometric Association 43:12 (Nov.) pp. 1270-73.

Noe, James F. (1972) "Optometry" in Introduction to Health Professions, ed. Ruth F. Odgers and Burness G. Wenberg, pp. 29-35. St. Louis: The C.V. Mosby Company.

Women's Action Program (1976) An Exploratory Study of Women in the Health Professions Schools. Vol. 6, Optometry. U.S. Department of Health, Education and Welfare. Final report pursuant to Contract HEW-OS-74-291 prepared by Urban and Rural Systems Associates (URSA), San Francisco, California.

PHARMACY

Description

Pharmacists have responsibility for a full range of activities in the procurement, storage, compounding, dispensing, administering and use of drugs and related materials. They also interpret the pharmacological effects of drugs when administered as a therapeutic measure in human diseases. Technological changes, resulting in the mass production of drugs have changed many of the pharmacist's traditional tasks. A new type of practitioner, the clinical pharmacist, brings the pharmacist into direct care of patients as a participant on the health team. As the experts on drugs and their effects on the patient, clinical pharmacists act as consultants and participate inpatient medical conferences. Pharmaceutical companies rely on pharmacists for research, quality control and dissemination of drug information to physicians. Independent pharmacists often combine their professional role with that of a business person owning and operating a pharmacy.

Education

A minimum of five years of college study (including one or two years in preprofessional college work) leads to the bachelor of science in pharmacy or the bachelor of pharmacy degree. Twenty-three schools of pharmacy offer a six-year program leading to doctor of pharmacy (Pharm.D.) degree; three schools offer only the Pharm.D. degree. Students with the bachelor's degree are eligible for licensure; those with the Pharm.D. degree additionally may practice as clinical pharmacists. Holders of the bachelor's degree may enter academic graduate programs in pharmaceutical chemistry, medicinal chemistry, pharmaceutics and related fields and earn a M.S. or Ph.D. degree.

Licensure

All fifty states require licensure. Eligibility requires graduation from an accredited school of pharmacy, prescribed period of internship (in most states), and passing an examination given by a state board of pharmacy. Most states have reciprocity agreements; California, New York and Florida do not.

Employment

Pharmacists own or work in community pharmacies, work for large retail chain stores and wholesale pharmacy companies. Others practice in hospitals, clinics, nursing homes or government agencies. Some practice clinical pharmacy on a hospital health team, teach or conduct research in schools of pharmacy. Still others are researchers and manufacturing supervisors in pharmaceutical firms.

Career Contingencies

Women have been accepted as pharmacists to a greater degree than as physicians or dentists. It is easier to reenter, work part time or have flexible hours, particularly in drug dispensing roles. Clinical pharmacy requires more full-time involvement as well as the additional training; it also carries more prestige and usually a higher salary.

FOR FURTHER INFORMATION

Associations

American Association of Colleges of Pharmacy
4630 Montgomery Avenue, Suite 201
Bethesda, MD 20014

American Pharmaceutical Association
2215 Constitution Avenue, N.W.
Washington, D.C. 20037

American Society of Hospital Pharmacists
4630 Montgomery Avenue
Bethesda, MD 20014

National Association of Retail Druggists
222 South Riverside
Chicago, IL 60606

PHYSICAL THERAPY

Description

Physical therapy involves the evaluation and treatment of patients' physical abilities and disabilities. The therapist, in collaboration with the physician, organizes and conducts medically prescribed therapy programs to restore body function, help the patient achieve maximum performance and prevent disability following disease, injury or loss of body parts.

Education

A Bachelor of Science degree in physical therapy from a college/university accredited by the Committee on Allied Health Education Accreditation (CAHEA) or by the American Physical Therapy Association (APTA) is required. With a bachelor's degree and certain prerequisites, one may enter a 12 to 18 month certificate program in physical therapy.

Licensure

All states require state licensure to practice physical therapy. Graduation from an approved program provides eligibility to take board examinations conducted by the state licensing agency.

Employment

Physical therapists work in hospitals, clinics, community agencies (such as the Easter Seal Society) and public institutions. Experienced physical therapists may work as consultants to nursing homes, establish individual practices through physician referrals and/or teach in physical therapy programs. Employment opportunities are usually good throughout the country, as is opportunity for part-time employment.

Career Contingencies

There is no stated age limit, but students over 30 are rarely accepted by most training programs. Physical therapy is regarded as a physically demanding profession. Physical therapists who maintain active licenses during career interruption may update skills through continuing education programs. Re-employment is contingent on labor market conditions and individual employer attitudes.

FOR FURTHER INFORMATION

Association

American Physical Therapy Association
1156 15th Street, N.W.
Washington, D.C. 20005

References

Woods, Gladys G. (1972) "Physical Therapy" in Introduction to Health Professions, ed. Ruth F. Odgers and Burness G. Wenberg, pp. 71-78. St. Louis: The C.V. Mosby Company.

PODIATRIC MEDICINE

Description

The term podiatry, meaning the treatment of diseases of the foot, was adopted in 1958 by the American Podiatry Association. The scope of podiatry varies among the states, but generally includes the diagnosis and treatment of diseases and injuries of the foot and lower extremities through surgical, mechanical or other therapeutic means. The podiatrist's scope traverses the spectrum from reconstructive surgery for congenital deformities in children to the treatment of chronic disorders in the elderly.

Education

Admission to one of the five currently existing colleges of podiatric medicine in the United States (in California, Illinois, New York, Ohio and Pennsylvania) requires a minimum of two years of undergraduate college, although the majority of those who are admitted hold a B.S. degree. The course of study in podiatric medicine leads to the degree of Doctor of Podiatric Medicine (D.P.M.). Postgraduate residencies, preceptorships and continuing education programs for practitioners provide additional training.

Licensure

In all 50 states as well as the District of Columbia and the Commonwealth of Puerto Rico, doctors of podiatric medicine are licensed by a State Board of

Medical Examiners. In addition, the National Board of Podiatry Examiners administers National Podiatry Boards, recognized by 45 states, the United States possessions and three Canadian provinces. According to Dr. Paul Scherer, vice president and academic dean of the California College of Podiatric Medicine, the American Podiatry Association estimates that by 1980 ten podiatrists will be needed for every 100,000 people, while projections made by the United States Public Health Service estimate that only 4.2 active podiatrists will be available for every 100,000 people by 1980. The demand for podiatric services is great now and practitioners predict a continuing upward trend due to growing demand for service and increased availability of insurance for podiatric care.

Employment

Most podiatrists are private practitioners. Podiatrists may serve on hospital staffs where they perform surgery, or on the faculty of a medical school, nursing school or college of podiatric medicine. Podiatrists also serve in industrial medicine, sports medicine, research, community medicine and in government institutions.

Career Contingencies

Financial rewards are comparable to those in other health professions requiring long periods of training. In the beginning of the 20th century, at least half of the podiatrists in the United States were women. This figure has decreased over the last several decades following the Second World War when almost no women were enrolled in podiatry schools. According to a recent HEW study, efforts to recruit women will have to be extensive and aggressive to increase the participation of women in podiatric medicine (Women's Action Program 1976, Vol. 7).

FOR FURTHER INFORMATION

Associations

American Podiatry Association
20 - Chevy Chase Circle, N.W.
Washington, D.C. 20015

American Association of Colleges of Podiatric Medicine
20 - Chevy Chase Circle, N.W.
Washington, D.C. 20015

References

Kopenhaver, Patricia et. al. (1972) "American Women in Podiatry -- A Survey." Journal of the American Podiatry Association 62:4 (Apr.) pp. 150-51.

Sartor, Laurence C. (1970) "How Students Learn About Podiatric Medicine." Journal of Podiatric Education 6:1 (Spring) pp. 5-8.

Women's Action Program (1976) An Exploratory Study of Women in the Health Professions Schools. Vol. 7, Podiatry. U.S. Department of Health, Education, and Welfare. Final report pursuant to Contract HEW-OS-74-291 prepared by Urban and Rural Systems Associates (URSA), San Francisco, California.

VETERINARY MEDICINE

Description

The veterinarian performs all aspects of prevention, treatment and alleviation of disease and injury in animals. Veterinarians are also concerned with human health through prevention and control of diseases transmittable from animals to humans, and through laboratory animal medical research projects concerned with both animal and human health. Specialists within veterinary medicine include public health, toxicology, laboratory animal medicine, microbiology, ophthalmology, pathology, radiology, surgery, internal medicine and preventive medicine. Many private veterinarians restrict their practices to large animals and livestock or small animals kept as household pets.

Education

A minimum of two to three years of undergraduate work or an undergraduate degree in basic sciences followed by four years of professional study in a college of veterinary medicine leads to the Doctor of Veterinary Medicine (D.V.M.) degree. Postgraduate internships and residencies are fairly new and limited in number. Some students complete a master's degree or Ph.D. in a specialty area.

Licensure

All states require licensure, obtained by passing a state examination. For licensure, some states also require applicants to pass a national examination administered by the National Board of Veterinary Medical Examiners. A few states have reciprocal agreements regarding licensure. To receive specialty board certification, candidates must have completed an internship or residency, an additional degree program, specified years of experience and have the sponsorship of a diplomat of the specialty.

Employment

Veterinarians work in private solo, partnership or group practices, in government agencies and institutions such as the military, public health and state agricultural extension programs. Some engage in teaching and research as well as direct animal care. Medical schools increasingly employ veterinarians to direct experimental animal care departments.

Career Contingencies

The increasing emphasis on small animal and laboratory animal work has increased opportunities for women in this profession. However, admission to the limited number of positions in schools of veterinary medicine is usually

determined by academic achievement and direct experience with animals. Women interested in this career should arrange to work with a veterinarian on either a paid or volunteer basis to gain requisite experience. Group practice provides opportunities for part-time work and/or flexible working hours. Reentry could be difficult without refresher training because skills and techniques must be current.

FOR FURTHER INFORMATION

Associations

American Veterinary Medical Association
930 North Meacham Road
Schaumburg, IL 60196

Women's Veterinary Medical Association
c/o Dr. Ann-si Li
2517 Castro Valley Rd.
Castro Valley, CA 94546

References

Cole, Clarence B. (1972) "Veterinary Medicine" in Introduction to Health Professions, ed. Ruth F. Odgers and Burness G. Wenberg, pp. 36-46. St. Louis: The C.V. Mosby Company.

Giuliani, Betty and John Centra (1968) "The Woman Veterinarian." Personnel and Guidance Journal (June) pp. 971-75.

"Women Veterinarians on Rapid Rise in U.S. and Canada." (1974) Journal of American Veterinary Medical Association 165:9 (Nov.) p. 785.

Women's Action Program (1976) An Exploratory Study of Women in the Health Professions Schools. Vol. 5, Veterinary Medicine. U.S. Department of Health, Education, and Welfare. Final report pursuant to Contract HEW-OS-74-291 prepared by Urban and Rural Systems Associates (URSA) San Francisco, California.

PARAPROFESSIONS

GENERAL CAREER PATTERNS AND REQUIREMENTS

Most health professionals are aided in their work by technicians with varying degrees of educational training and experience. Most paraprofessions (like allied health professions) seek professional status and form occupational associations to advance themselves. Advancement depends in part on technological advancement in the field. For example, for many years Xray technicians were trained on-the-job by physicians and became a distinct paraprofession -- radiologic technology. With rapid developments in radiology following World War II, the occupation divided into several specialties each requiring highly specialized training. One specialty, nuclear medicine technology, is now a separate paramedical career. Its rapid advance toward professional status is related to its close association with the relatively new and prestigious specialty of nuclear medicine. Nuclear medical technologists have always been voting members of the Society of Nuclear Medicine, a privilege other medical professional associations have not granted paraprofessionals. Another rapidly developing radiology specialty, ultra sound technology, has grown in the past seven years to the point that the American Medical Association has been asked to approve it as a separate health paraprofession.

An occupation such as dental assisting has been a recognized paraprofession for years, but standardization of educational and clinical training requirements has progressed at a slow pace. Other professionalization may be limited unless the roles of dental hygienists and dentists change.

Some paraprofessions such as bioelectronic technicians, develop as health science specialists from larger scientific fields. Another type of paraprofession is one created as a full-fledged occupation by the "parent" profession and manpower policy-makers. To utilize the training and experience of medical corpsmen, the new occupation of physician's assistant was established and may eventually incorporate persons in older, established paramedical categories such as orthopedic and urology technicians.

This section does not attempt to describe all of the more than 100 health paraprofessional technicians and assistants. Many assistants are identified through the "parent" professions, such as occupational therapy assistant, dietitian assistant, pharmacy assistant or optometric assistant. In this section, seven paraprofessions are described in detail. Sixteen additional occupations having similar characteristics are listed along with addresses for additional information.

DENTAL ASSISTANT

Description

Dental assistants have various skill levels ranging from that of the generalist (office records, appointments, dental laboratory, Xray) to the highly specialized chairside assistant. Skilled dental assistants receive and prepare patients, handle instruments, prepare materials, assist at the chair and give posttreatment instruction. They sometimes teach dental students the proper utilization of dental assistants.

Education

Courses approved by the American Dental Association leading to eligibility for certification constitute the most widely acceptable training option available. On-the-job training has been widely used as well.

Licensure

Certification is granted upon passing an examination sponsored by the American Dental Assistants' Association (ADAA). Certification is not currently required, but certification improves opportunities for employment, particularly in urban areas. Licensure is not required.

Employment

Most dental assistants are employed in private offices and dental clinics. Dental schools employ certified assistants to teach dental students how to work with dental assistants and to provide chairside assistance in teaching clinics.

Career Contingencies

There is little room for advancement in the occupation, except in a teaching position or supervisory position in a large clinic. As dentistry becomes more specialized, dental assistants may become more specialized as well. Interest in the field can be a stimulus to pursuing a career in dentistry or in dental hygiene.

FOR FURTHER INFORMATION

Associations

American Dental Assistants Association
American Dental Association
211 East Chicago Avenue
Chicago, IL 60611

Description

This is a recently recognized dental paraprofession divided into specialties. Denture specialists make complete sets of dentures; crown and bridge specialists construct missing parts of teeth; partial specialists and ceramicists or porcelain specialists are responsible for reconstructing individual missing teeth. Orthodontic technicians work with wire and solder orthodontic devices.

Education

Two-year approved programs offered by junior and community colleges lead to an A.A. degree. Military service also provides training opportunities.

Licensure

Certification is optional and the occupation is still in the process of recognizing formal specialties. The American Dental Association (ADA) and the National Association of Dental Laboratory Technicians (NADLT) encourage technicians to become certified. Two years of school plus three years of experience are required to take the certification examination.

Employment

Dental laboratory technicians work in private laboratories, dental schools, military services and government agencies. Some own their own laboratories.

Career Contingencies

There is little opportunity for advancement, although technicians can move into dental supply sales or open their own laboratories. An increasing number of dental schools offer employment to technicians, and many technicians apply to and graduate from dental school. Women traditionally have not been encouraged or counseled into this field, although more have entered in recent years.

FOR FURTHER INFORMATION

Associations

National Association of Dental Laboratories
3801 Mount Vernon Avenue
Alexandria, VA 22305

LAY MIDWIFE

Description

The lay midwife performs similar functions as the nurse-midwife, but without formal training or the direct supervision of a physician. Lay midwives work primarily in rural and/or low-income areas where medical services are scarce or nonexistent, or where clients prefer to avoid using conventional medical practitioners.

Education

The lay midwife usually receives training through informal apprenticeship.

Licensure

The legal status of lay midwifery is currently in a state of flux; in most states it is illegal to practice for a fee. Although 23 states presently license lay midwives, 13 of these states are not reissuing new licenses.

FOR FURTHER INFORMATION

Associations

National Midwives Association
Box 163
Princeton, NJ 08540

National Association of Parents and Professionals for
Safe Alternatives in Childbirth (NAPPSAC)
Box 1307
Chapel Hill, NC 27514

References

Arms, Suzanne (1975) Immaculate Deception. New York: Houghton-Mifflin.

National Center for Health Statistics (1975) Health Resources Statistics, Health Manpower and Health Facilities. Washington, D.C.: Government Printing Office. DHEW Publication (HRA) 76-1509.

LICENSED VOCATIONAL/PRACTICAL NURSE (LVN/LPN)

Description

The LVN/LPN practice under the direction of either a licensed physician and surgeon or a registered professional nurse. They are most commonly responsible for bedside nursing care, but also function as team leaders in acute and critical care facilities and as charge nurses in extended and long term health care facilities. Duties include dispensing medications and drugs, checking and charting vital statistics, patient instruction and supervision of unlicensed nursing personnel such as aides and orderlies.

In California and Texas, the licensed vocational nurse (LVN) is synonymous to the licensed practical nurse (LPN) found in the other 48 states and U.S. territories. Preparatory and practice variations exist from one state to another depending upon the laws and regulations of the state.

The licensed vocational/practical nurse is not to be confused with the unlicensed "practical nurse," a term used widely to describe ancillary non-nursing personnel including aides, orderlies, nurse assistants, home health companions and others.

Education

High school graduation is usually a prerequisite for entering a licensed vocational/practical nursing program. This preparatory course for licensure includes both classroom and clinical practice in hospitals. Most of these courses consist of three school semesters and must be approved by the respective governing board. Although offered at minimal cost through most community and junior colleges, private institutions also offer these programs at a much higher cost.

Licensure

State licensure is required for both L.V.N. and L.P.N. Reciprocity among states is based on scoring standards required on "State Board Test Pool Examination (SBTPE)." This examination is presently given in all U.S. territories and states except California.

Employment

L.V.N.s and L.P.N.s practice in hospitals, clinics, private duty, doctor's offices and specialty areas such as blood banks and weight reduction centers.

Career Contingencies

Advancement is limited without additional education. With additional preparation over that required for licensure, the L.V.N./L.P.N. duties include greater specialty functions in areas such as intravenous (I.V.) therapy, inhalation therapy, emergency room, intersive care unit (I.C.U.), critical care unit (C.C.U.). The law in California provides that up to 45 units credit may be granted for L.V.N. work toward R.N. licensure. Part-time employment is possible but often not available. Reentry would require updating of skills.

FOR FURTHER INFORMATION

Associations

National Federation of Licensed Practical Nurses
888 - 7th Avenue
New York, NY 10019

California Licensed Vocational Nurses' Association
1617 Webster Street
Oakland, CA 94612

References

Sandiford, Janice (1972) "Licensed Practical Nursing" in Introduction to Health Professions, ed. Ruth Odgers and Burness G. Wenberg, pp. 59-63. St. Louis: The C.V. Mosby Company.

PHYSICIAN'S ASSISTANT

Description

A physician's assistant (P.A.) provides patient services under the direct supervision of a licensed physician. A physician's assistant may take medical histories, perform physical examinations, instruct patients, write certain prescriptions and perform routine technical medical tasks.

Education

Requirements vary from one year (for those with medical corpsman experience, R.N. or junior college preparation) to two years. Training may be offered by medical schools, helpitals and some prison systems. One may earn a baccalaureate or associate degree, or certificate. Training programs vary; some provide classroom and clinical instruction, whereas others are short intensive courses in theory and clinical training followed by one year of preceptorship.

Licensure

State requirements vary; they are controlled by the National Board of Medical Examiners and state medical examiners. Some states issue licenses, others are still attempting to clarify duties, titles and differences between nurses and P.A.s. The physician employer is ultimately accountable for work performed by a physician's assistant.

Employment

In urban areas, physician's assistants usually work in hospitals, clinics or private practice offices. In rural areas, P.A.s may work great distances away from their physician supervisors, frequently doing the routine medical work of a general practitioner. Final authority and responsibility for decisions rest with the physician. Employment opportunities are closely related to the labor needs of physicians or hospital administrators in larger urban hospitals.

Career Contingencies

Geographical mobility is limited because there are great differences in employment conditions and licensing requirements between states; conditions for reentry and opportunities for part-time employment are uncertain because it is a new career. Educational requirements and duties may change more rapidly than in other more established careers.

Individuals interested in this career should investigate the differences between physician's assistant and nurse practitioner education and licensure in their state. In general, nurse practitioners have a broader range of career opportunities and easier geographical mobility than physician's assistants. Mechanisms for reciprocity for the registered nurse license among states is well established. For the nonnurse seeking a new career, physician's assistant training may require a shorter period of time.

FOR FURTHER INFORMATION

Associations

American Academy of Physician's Assistants
2341 Jefferson Davis Highway
Suite 700
Arlington, VA 22202

References

Dearing, James P. (1972) "Emerging Health Professions" in Introduction to Health Professions, ed. Ruth Odgers and Burness G. Wenberg, pp. 179-89. St. Louis: The C.V. Mosby Company.

RADIOLOGIC TECHNOLOGY

Description

The radiologic technologist assists the physician (usually a radiologist) in the diagnosis and treatment of illness and injuries through the use of ionizing radiation equipment and procedures. The technologist adjusts the equipment to the correct settings for specific examinations, positions the patient, and takes the required number of radiographies in diagnostic radiology, or exposes the patient to prescribed doses of radiation for treatment of disease in radiation therapy. Radiologic technologists perform a variety of related procedures such as operating mobile equipment in surgery and assisting radiologists in fluoroscopy. Nuclear medicine technology, involving the use of radioactive isotopes in both diagnosis and treatment, is becoming a separate discipline because of the rapid growth of this specialized technology (see nuclear medicine technology). Similarily, ultra sound technicians are becoming members of a distinct occupation (see paraprofessional assistants/technicians).

Education

Diagnostic radiology technology requires completion of a two-year American Medical Association approved educational and clinical program in a community college, hospital or medical school. Requirements can be met in two ways. One may complete a two-year program in radiation therapy or complete a two-year course in diagnostic radiologic technology plus take an additional 12-month program in radiation therapy. Not all schools offer the first type of program.

Registered radiologic technologists may also complete a 12-month training program in nuclear medicine to qualify as nuclear medicine technologists. Registered nurses are also eligible for admission to programs in radiation therapy or nuclear medicine technology. In response to technological developments in electronics, medicine and surgery, a few schools now offer baccalaureate degree programs in radiologic technology.

Licensure

License to practice is required by only five states at present. Most hospitals and other institutions, however, prefer to employ only those technologists eligible for national registration. Registration is obtained through passing an examination administered by the American Registry of Radiologic Technologists (A.R.R.T.).

Employment

Radiologic technologists are employed in hospitals, Xray laboratories, multispecialty clinics, physicians' offices and government agencies. Opportunities are also available in sales, installation and service, particularly for those with additional training or experience in engineering and electronics.

Career Contingencies

Educational and licensure requirements, as well as labor market trends, vary throughout the country; women considering either a geographical move or reentry into the field would do well to check local requirements. Part-time employment is sometimes possible. Continued development of ionizing radiation and increased specialization suggest that employment opportunities will continue to be good for graduates of approved programs.

FOR FURTHER INFORMATION

Associations

American Society of Radiologic Technologists
500 North Michigan Ave., Suite 836
Chicago, IL 60611

American Registry of Radiologic Technicians
2600 Wayzata Boulevard
Minneapolis, MN 55405

References

Bullock, Robert J. and Philip Ballinger (1972) "Radiologic Technology" in Introduction to Health Professions, ed. Ruth Odgers and Burness G. Wenberg, pp. 127-34. St. Louis: The C.V. Mosby Company.

Hendee, William R. (1971) "A Collaborative Program in Allied Health Training." Journal of Medical Education 46 (Aug.) pp. 658-65.

RESPIRATORY THERAPY

Description

Respiratory therapists are responsible for medically directed treatment, management, control, diagnostic evaluation and care of patients with deficiencies and abnormalities of the cardiopulmonary system.

This involves setting up, operating and maintaining procedures and equipment in the therapeutic use of medical gases and administration apparatus, environmental control systems, humidification, aerosols, medications, ventilatory support, bronchopulmonary drainage, pulmonary rehabilitation, cardiopulmonary resuscitation and airway management.

Education

To qualify for the certification examination, students must complete a one-year education program approved by the A.M.A. To qualify for the registry examination, an individual must complete a two-year educational program approved by the A.M.A. These programs are affiliated with at least a junior college and combine required didactic and clinical courses. Some colleges and universities offer three or four-year advanced standing educational programs.

Licensure

Certification is gained through passing a written examination given by the National Board for Respiratory Therapy (N.B.R.T.). Those certified are entitled to use the credentials Certified Respiratory Therapy Technician (C.R.T.T.). To become a registered Respiratory Therapist (R.R.T.), candidates must successfully complete both a written and an oral examination at the completion of the two-year program and may use the credentials Registered Respiratory Therapist (R.R.T.).

Employment

Most therapists and technicians work in hospital departments of respiratory therapy or pulmonary medical services. They may also work in research, public health agencies or in respiratory equipment manufacturing firms. Some have established their own business to sell, lease or rent equipment to individual patients and long-term care agencies.

Career Contingencies

This rapidly expanding field is open to women; age is not a limiting factor. Continued demand for qualified therapists and technicians is anticipated as research and environmental respiratory health programs increase. Part-time and flexible working schedules (in hospitals) are employment possibilities. Reentry, as for other relatively new health careers, requires current technological knowledge and skills.

FOR FURTHER INFORMATION

Associations

American Association for Respiratory Therapy
7411 Hines Place, Suite 101
Dallas, TX 75235

National Board for Respiratory Therapy
Executive Office, Suite 124
1900 W. 47th Street
Westwood, KS 66205

ADDITIONAL PARAPROFESSIONS

Animal Health Technician: assists veterinarians in animal hospitals and clinics with medical and surgical procedures, Xrays, minor dental procedures.

Bioelectronic Technician: builds, modifies, operates and maintains medical electronic equipment and instrument systems. May assist engineers, researchers and medical personnel with clinical procedures and experiments.

Dietetic Technician: assists dietitian in planning, implementing and evaluating food service programs.

Electrocardiograph Technician: operates ECG (EKG) machine recording heart beats (used in diagnosing abnormalities) or monitors patients receiving cardiotoxic medications.

Electroencephalograph Technician: operates EEG machine recording brain waves, used in diagnosis and evaluation of brain diseases or trauma.

Emergency Medical Technician: administers emergency medical care such as cardiac resuscitation or shock treatment until patient reaches a physician. May operate ambulance or dispatch emergency care equipment.

Medical Assistant: schedules appointments, prepares patients for examinations; may type or prepare billing; may perform simple lab tests.

Optometric Technician: assists optometrist with vision training and testing, fitting of lenses; may also schedule appointments and perform other clerical tasks.

Ophthalmic Technician: assists ophthalmologist with optical measurements, photographs and other diagnostic and treatment procedures. May assist with minor surgical procedures.

Optical Laboratory Technician: grinds, polishes, finishes, mounts optical lenses. Inspects and tests finished lenses.

Orthoptist: works with ophthalmologist in diagnosis and treatment of eye muscle and fusion anomalies through specialized eye exercises. May assist with glaucoma or visual field testing.

Orthotist/Prosthetist: constructs and fits artificial limbs and orthopedic braces. (After 1980 this will require a bachelor's degree for certification).

Psychiatric Technician: works with emotionally ill or mentally retarded patients under the supervision of physicians and registered nurses. Administers simple nursing care; observes, interviews and counsels patients; and participates in recreation, work and treatment programs.

Education

Many technicians and assistants train on-the-job or complete short vocational school programs. The trend, however, is toward formal one and two-year programs in community colleges, or technical schools that include clinical training in hospitals and other medical facilities.

Licensure

State licensure is not required for the majority of paraprofessions. National registration or certification is required by many employers. Training programs are usually accredited by professional associations. In some areas, graduation from an approved program is necessary to ensure employability.

Employment

Paraprofessional technicians and assistants work in hospitals, clinics, community health organizations and private offices. They are directly responsible to the health professional whom they assist.

Career Contingencies

Not all hospitals and clinics recognize all of the paramedical personnel as having distinct careers; technicians are more widely recognized than assistants. Employment opportunities vary greatly, depending on local labor market conditions. Women who wish to enter a profession but who are unable to do so because of financial or time constraints, can sometimes use a paraprofession as a stepping-stone. The training in community colleges is inexpensive and equips a woman with marketable skills so she can support herself while pursuing further education.

FOR FURTHER INFORMATION

Associations

American Medical Association
Department of Allied Health Evaluation
535 North Dearborn Street
Chicago, IL 60610

American Hospital Association
840 N. Lakeshore Drive
Chicago, IL 60611

References

Kinsinger, Robert E. ed. (1974) Health Technicians. Chicago: J.G. Ferguson.

Odgers, Ruth and Burness G. Wenberg (1972) Introduction to Health Professions. St. Louis: C.V. Mosky Company.

"200 Ways to Put Your Talent to Work in the Health Field." (n.d.) New York: National Health Council, 1740 Broadway, New York, NY 10019

National Center for Health Statistics (1975) Health Resources Statistics.

See especially introduction and chapters 1-38. U.S. Department of Health, Education and Welfare, Public Health Service. Washington, D.C.: Government Printing Office. DHEW Publication No. (HRS) 76-1509.

CHAPTER 5: PUBLIC HEALTH CAREERS

Velma Parness

GENERAL CAREER PATTERNS AND REQUIREMENTS

Description

Public health professionals work in local, state, regional or federal health departments, hospitals, clinics, universities, voluntary health agencies and international health agencies. Public health occupations include a broad array of disciplines and specialties. Major branches are described in this chapter.

Some require previous training and/or experience in a health profession whereas others are open to persons with a combination of a bachelor's degree in a wide range of disciplines and appropriate related work experience.

Education

Many students enter graduate programs in public health without any training in the sciences. Physicians, nurses, social workers, nutritionists and other health professionals often undertake advanced training in public health, receiving an M.P.H. (Master of Public Health) or Dr. P.H. (Doctor of Public Health) degree. These specialized, hybrid professionals are prepared to pursue high-level research, policy and/or administrative careers. For example, experienced nurses and physicians often take advanced training in the field of maternal and child health -- a popular public health specialty area. There are also advanced training opportunities for baccalaureate or graduate biomedical scientists in public health immunology, parasitology, microbiology and epidemiology.

The years of training beyond a bachelor's or first professional degree ranges from one to two years for an M.P.H., two years for an M.A. or M.S. and three to four years for a Dr. P.H. or Ph.D. There are currently 19 accredited schools of public health in the United States that award these degrees.

Public health careers that do not necessarily require previous training in a clinical profession include health education, health planning, community mental health, biostatistics, environmental health, epidemiology and health and hospital administration, all described in this chapter. In these fields, one to two years of graduate work in a school of public health prepares one for entry into professional level public health work.

Within each of the primary public health occupations described, there are opportunities for moving into highly specialized administrative positions within organizations. For example, health educators often move from direct service to administering health education programs, physicians become directors of maternal and child health programs and epidemiologists become research directors.

Health administrators vary in educational background. Some have graduate degrees in administration such as an M.P.H., M.B.A. (Master of Business Administration) or Dr.P.H. and a health profession (for example an M.D. or a B.S. or M.S. in nursing). Administrators with these dual degrees usually enter the field at high administrative levels. Others have only a professional or

administrative degree and engage in public health work. Although some health administrators have little formal training, educational requirements have increased in recent years so that, today, a graduate degree in administration is essential in most settings. The years of training beyond the bachelor's degree ranges from one to four depending on the type of administrative degree and specialty area choosen (for example an M.P.H., one to two years; M.B.A., two years; Dr. P.H., three to four years).

The kind of graduate training one pursues for health and hospital administration varies. There is currently some informal debate as to which degree makes a person more employable, the M.B.A., M.P.H., M.H.A. (Master of Health Administration) or Ph.D. What is quite clear, regardless of degree held, is the need for a strong background in the fiscal/business realm of administration.

The type of graduate training available varies, although the trend is toward interdisciplinary programs involving faculty from schools of public health, medicine, nursing, business administration, public administration and allied health. Thus students get basic core courses and then choose a specialized area to pursue such as rural health administration, clinic and ambulatory care administration, hospital administration, or corporate administration that has become increasingly common as corporations are involved in managing groups of hospitals.

Educational Expenses

The cost of training depends on the type of school attended and the length of training. Tuition and fees can be as high as $5,000 per year at a private university and under $200 per year at a public institution. Books, supplies, room and board, and other expenses average about $2,000 per year (Commission on Education 1975, Vol. II, p. 3). There are many ways to finance public health graduate study: scholarships, loans, savings, assistance from relatives and earnings from part-time employment. U.S. Public Health Service Public Health Training Grants and Graduate Minority Program Grants generally range from $2,500 to $5,000 per year plus tuition and fees. Adequate financial aid is currently available.

Entry of Older Students

Graduate training in public health administration is more open to older students than many other fields. In fact, schools of health administration encourage mid-career students. For example, in 1972-73 only 14.7 percent of all students in 48 graduate programs surveyed were under 26 years of age. Seventy-six (76) percent were between the ages of 26 and 40; 8 percent were 41 or older (Commission on Education 1975, Vol. II, p. 122). Among accepted M.P.H. students at the University of California, Berkeley, School of Public Health in 1977, 21 percent were under 25, 59 percent were 25-34 and 20 percent were 35 or older ("Students in the School of Public Health" 1977). Prerequisites for admission often include paid or volunteer experience in health or a related field, experience that many women obtain on a part-time, volunteer basis or while pursuing other occupational careers.

Entry and Reentry

In health and hospital administration, a woman completing graduate training in her mid-thirties or later (after childrearing or pursuing other career lines) may be more employable than a woman who completes training earlier and then temporarily withdraws from the labor force and tries to reenter health administration. To maintain her employability, the reentry woman has to have made significant efforts to keep up her skills through part-time or volunteer work and/or continuing education. However, there are few opportunities for part-time and/or volunteer employment in health administration. Part-time employment is sometimes available in research laboratories. Volunteer opportunities are readily available in nursing, health education and social work in both public and private agencies. Part-time paid employment can sometimes be arranged. In general, 'reentry' in rapidly changing fields such as medicine and nursing are more difficult than reentry into specialties such as health education that change more slowly.

Career Contingencies

Women constitute a large proportion of all primary public health professionals and their numbers are growing. For example, prior to 1976, women comprised less than half of all the M.P.H. students accepted at the University of California, Berkeley; in 1977 the figure rose to 53 percent ("Students in the School of Public Health" 1977).

Women and minorities are underrepresented in health administration. A 1972-73 survey of 48 U.S. graduate programs in health administration revealed that 77 percent of the 2,785 students were male; only 23 percent were female. Of all students, 87.3 percent were white; blacks comprised 10 percent, Spanish-Americans 2 percent and Native Americans .7 percent (Commission on Education 1975, Vol. II, p. 95). Within the field, women are least likely to be hospital administrators and most likely to work in nursing facilities and in voluntary health service organizations; both male and female minorities have a similar employment pattern. Women and minorities are even more underrepresented in environmental health, biostatistics, epidemiology and laboratory sciences.

The public health professions offer opportunity for geographical mobility both within the United States and internationally. In the United States opportunities are most plentiful in urban areas and in areas where a government seat is located; however, there are also many rural areas that encourage and recruit people with public health training. Internationally, the World Health Organization (WHO), The Agency for International Development (AID), Pan American Health Organization (PAHO) and the Peace Corps all employ public health specialists.

In health administration, the consequences of geographical mobility or immobility are minimal. More significantly, administrative opportunities are greatest in urban areas and least available in rural areas. Movement from one institution to another within a geographical area, however, is common; to move up in health administration, job changes are often necessary.

Occupational associations provide opportunities to develop informal networks within the field and to keep abreast of new technical developments and employment opportunities. Public health professionals typically belong to the American Public Health Association (APHA) in addition to discipline-specific associations such as the American Association of Immunologists, American Medical Association, and American Nursing Association.

FOR FURTHER INFORMATION

Associations

American Public Health Association (APHA)
1015 18th Street, N.W.
Washington, D.C. 20036

References

Callaghan, Donald F. (1970) "Graduate Education for Hospital and Health Services Administration. Pattern for the Future." Health Care Research Series 16, University of Iowa.

Commission on Education (1975) Education for Health Administration Vols. 1 and 2. Ann Arbor: Health Administration Press.

"Students in the School of Public Health" (1977). Berkeley: University of California. Mimeo.

Women's Action Program (1976) An Exploratory Study of Women in the Health Professions Schools, Vol. 9, Public Health. U.S. Department of Health, Education, and Welfare. Final report pursuant to Contract HEW-05-74-291 prepared by Urban and Rural Systems Associates (URSA), San Francisco, California.

Yokopenic, Patricia A., Linda Borque and Donna Brogan (1973) "Professional Communication Networks: A Case Study of Women in the American Public Health Association." Social Problems 22: 4 (April) pp. 493-09.

Grant, Christine (1977) "Future Trends in Health Care Management." Resource 1: 2 (May) pp. 10-11.

OCCUPATIONAL SUMMARIES

HEALTH ADMINISTRATION

Description

Health administration involves planning, organizing, directing and evaluating health and medical care resources used by individual clients, organizations and communities (Commission on Education 1975, Vol. 1, p. 36). Health administrators serve as directors and managers of public and private institutions, agencies and programs that plan and/or deliver health services.

The complex range of health administration occupations can be divided into(1) program specialty tracks and(2) functional specialty tracks. Program specialists, who typically have an M.P.H., M.P.A., M.H.A. or M.B.A., hold administrative positions that coordinate and oversee day-to-day activities in specialized facilities such as ambulatory care, mental health and well-baby clinics. Functional specialists, with formal training in business disciplines such as accounting or computer science, perform business management functions including financial management, planning, personnel administration, communication, systems analysis and labor relations. Planning and policy development are carried out at administrative levels in public Health Systems Agencies (HSAs).

Education

There are over 30 undergraduate health administration programs in the United States. Graduate training may be in a school of public health, medical school, schools of business administration, public administration or hospital administration. Some schools offer dual degree programs in which students can earn combined degrees such as an M.B.A./M.H.A.; M.P.H./M.D.; or M.P.H./Ph.D. Many schools offer options to complete course work outside the primary degree granting department.

Licensure

There are a few states that have licensure requirements for hospital administrators. Nursing home administrators must be licensed if the state participates in Medicaid programs.

Employment and Mobility

Health administrators work in varied settings: public and private clinics and hospitals; nursing homes; mental health facilities; health departments; voluntary health agencies; national, state, regional and local health planning agencies; environmental control agencies; insurance companies; and highly specialized programs and service agencies such as government or privately funded research and demonstration projects.

The hierarchical system within administration is patterned after the traditional medical model and physician administrators dominate most settings. However, nurse administrators and nonclinically trained administrators are taking increasingly larger roles and responsibilities at high levels. Health administrators with specialized training are becoming more sought after because their management skills are now recognized as crucial to delivery of services. To move up career ladders within employing organizations, it is important to develop skills and gain experience in areas such as planning,

policy development and analysis, resource allocation, budgeting, measurement, evaluation and control. Currently there are relatively few women and minorities in this field, but there are considerable opportunities for entry and advancement.

FOR FURTHER INFORMATION

Associations

Academy of Health Administration
c/o E. Texas State University
P.O. Box 5518
Texarkana, TX 75501

American College of Hospital Administrators
840 N. Lakeshore Drive
Chicago, IL 60611

American College of Nursing Home Administrators
4650 East-West Hwy.
Washington, D.C. 20014

Association of Mental Health Administrators
4131 N. Grand River, Suite 3
Lansing, MI 48906

Hospital Financial Management Association
666 N. Lake Shore Drive
Chicago, IL 60611

Medical Group Management Association
4101 E. Louisiana
Denver, CO 80222

References

Appelbaum, Alan L. (1975) "Women in Health Care Administration." Hospitals, Journal of the American Health Association 49 (Aug.).

Commission on Education (1975) Education for Health Administration, Vol. 1. Ann Arbor: Health Administration Press.

Nerlinger, Josephine (1973) "Things Looking Up--But Not Too Far--for Women M.H.A.'s." Modern Hospital 120 (Jan.)

Polson, Marian Terry (1967) "Where Women Stand in Administration." Modern Hospital 108 (May).

BIOMEDICAL LABORATORY SCIENCES

Description

The biomedical laboratory sciences are medical microbiology (including immunology, bacteriology, virology and mycology, parasitology, comparative and experimental pathology) and clinical and public health laboratory science. Together, these disciplines promote knowledge of the ecology and pathogenesis of infectious and chronic noninfectious disease processes in human populations. Practitioners engage in both basic and applied research.

Education

For entry into most graduate biomedical laboratory science programs, some background in biological science and work experience in clinical or public health laboratories is generally required.

Licensure

A medical technology license is often required in clinical settings (see Chapter 4).

Employment and Mobility

Biomedical laboratory scientists work in universities and public health medical laboratories as technologists, researchers, administrators and/or teachers. Advancement involves moving up through various levels of research and administration. Laboratory supervision and administration is the career path outside of university settings.

FOR FURTHER INFORMATION

Associations

American Academy of Microbiology
1913 Eye Street, N.W.
Washington, D.C. 20006

American Association of Immunologists
9650 Rockville Pike
Bethesda, MD 20014

American Association of Pathologists
9650 Rockville Pike
Bethesda, MD 20014

American Society of Parasitology
1041 W. New Hampshire Street
Lawrence, KS 66044

Mycological Society of America
c/o J. W. Kimbrough
Department of Botony
University of Florida
Gainesville, FL 32611

BIOSTATISTICS

Description

Biostatistics is a discipline concerned with the development and application of statistical principles and methods to the medical, biological and health sciences. Biostatisticians are specialists in quantitative research (design, sampling, data collection and analysis) and work closely with researchers in the social and behavioral health sciences, health professions and computer technology.

Education

A bachelor's degree in a social science is the minimum requirement for entry into the field. Some knowledge of biology and solid training in statistics are required. Many biostatisticians undertake advanced training for an M.A., M.S., Ph.D., M.P.H. or Dr. P.H.

Licensure

None.

Employment and Mobility

Biostatisticians work in pharmaceutical companies, hospitals, universities, federal and state health departments, international health organizations and in consulting firms. Actuarial work, teaching, research and administration provide varied career ladders.

FOR FURTHER INFORMATION

Associations

American Statistical Association
806 15th Street, N.W.
Washington, D.C. 20005

ENVIRONMENTAL HEALTH SCIENCES

Description

Environmental health sciences are those disciplines that integrate knowledge about human health in relationship to the impact of physical, chemical and biological agents on the environment. These health scientists identify, describe and theorize about the pathological and physiological impact of environmental factors on health and propose policies and procedures for reducing environmental health hazards. Specialty areas include industrial hygiene -- occupational health and safety; environmental toxicology; forensic science, public health engineering and sanitary microbiology.

Education

Persons interested in studying environmental health sciences can attain a variety of degrees: a B.S., M.S., Ph.D., M.P.H. Length of education can range from two to four years of graduate training. Background in a physical, chemical or biological science is desirable as are calculus and analytic geometry.

Licensure

Some states may have their own requirements for sanitarians. Otherwise, no license is required.

Employment and Mobility

Environmental health scientists with higher academic degrees (M.S., Ph.D.) are employed as researchers in government and private industry. Those with degrees in an applied field (such as engineering or public health or with a bachelor's degree) are employed as technicians and planners in private industry or public agencies such as state and local health departments. Environmental health specialists have opportunities for employment in teaching, research and administration.

FOR FURTHER INFORMATION

Associations

American Association for the Advancement of Science
1515 Massachusetts Avenue, N.W.
Washington, D.C.

American Society of Sanitary Engineers
960 Illuminating Building
Cleveland, OH 44113

Conference of State Sanitary Engineers
One Deerfield Drive
Troy, NY 12180

Occupational Health Institute
150 Walker Drive
Chicago, IL 60606

EPIDEMIOLOGY

Description

Epidemiology is the science concerned with the study of the distribution of disease in human populations. Epidemiological research is designed to discover the causes of disease, to advance and evaluate methods of disease prevention, and to aid in planning and evaluating the effectiveness of public health programs such as mass immunizations, antismoking campaigns, environmental and occupational related diseases. Many epidemiologists specialize in the study of infectious diseases; others focus on noninfectious diseases with strong sociocultural and environmental etiologies such as cancer, heart disease and mental illness. Some specialties can be extremely demanding, requiring field work in remote areas under severe conditions. Other specialties, however, are largely office-based.

Education

Graduate programs generally offer two degree plans: the M.P.H. to Dr. P.H. sequence (for applied work or for students combining public health with previous disciplinary training) and the M.S. to Ph.D. sequence (for research and university teaching). Most students studying for an M.P.H. in epidemiology already hold an advanced degree in a health profession (M.D., D.V.M., D.D.S.) or a Ph.D. in a biological or social science. For these students, one year of graduate training leads to the M.P.H. In some institutions, students with a master's degree can enter a two year M.P.H. program.

Licensure

None.

Employment and Mobility

Epidemiologists work in federal, state and local health departments, hospitals, colleges and universities, the armed services and international health agencies such as the World Health Organization (WHO). There are administrative opportunities in state government; every state has a state epidemiologist. Other administrative jobs are as laboratory heads or research directors and coordinators. Opportunities for international employment are good. Teaching and research careers at schools of public health and medicine are also options.

FOR FURTHER INFORMATION

Associations

Society of Epidemiological Research
615 N. Wolf Street
Baltimore, MD 21221

American Epidemiological Society
(address changes annually with chair)

APHA - Epidemiology Section
1015 18th Street, N.W.
Washington, D.C. 20036

HEALTH EDUCATION

Description

Public health education uses an educational approach to facilitate changes in behavior that are integral to the solutions of public health problems. Health educators understand behavior and how to facilitate attitudinal changes in individuals, groups and communities. Health educators typically must identify and analyze educational needs related to solutions to health problems in public health settings. Professional skills are used in planning, administering and evaluating the educational components of health programs.

Education

A degree in the behavioral sciences, education, health, or biological and physical sciences coupled with relevant work experience is generally required for entry into an M.P.H. program.

Licensure

None.

Employment and Mobility

Health educators work in local, county, state and federal health departments, private and public agencies, hospitals and clinics, international agencies and governments, colleges, and schools. Age is not a barrier. Related volunteer and paid experience are valued in graduate programs and employment. There are opportunities for program and project administration.

FOR FURTHER INFORMATION

Associations

American Public Health Association
1015 18th Street, N.W.
Washington, D.C. 20036

Society for Public Health Education
655 Sutter Street
San Francisco, CA 94102

HEALTH PLANNING

Description

Comprehensive health planning is promoted, funded and/or carried out by public agencies at all levels of government, by voluntary agencies and professional or citizen's groups. Planning involves applying the most appropriate available technology to work in the prevention or amelioration of ill health. There is (1) project planning based on problem-solving techniques, (2) longer range system planning stressing use of optimizing techniques among the components of a system and (3) policy planning (Bulletin of the School of Public Health 1977-78, University of California, Berkeley).

Education

To enroll in an M.P.H. program, one is usually required to have some paid or voluntary health experience, introductory college-level courses in economics, other social sciences, human biology and disease and algebra or statistics.

Licensure

None.

Employment and Mobility

Local, state, and federal health agencies; hospitals, health maintenance organizations, multiunit health care systems and voluntary agencies are the most typical employment settings. Health planning can be a flexible field depending on one's background and interests. There are many opportunities for varied types of planning and planners can also teach, direct programs and move into administration.

FOR FURTHER INFORMATION

Associations

American Health Planning Association
2560 Huntington Avenue
Suite 305
Alexandria, VA 22303

References

Bulletin of the School of Public Health, University of California, Berkeley (1977-78) 71:7 (June).

MATERNAL AND CHILD HEALTH SPECIALISTS

Description

Maternal and child health specialists are involved in all aspects of health care for mothers and children including family planning; childbirth and parenthood education; maternity care; preventive health supervision of infants, children and adolescents; care of sick and handicapped infants and children; identifying social and cultural needs of families; and organizing community resources to optimize the health of mothers and children.

Education

The M.P.H. is primarily for physicians, although other health professionals, such as nurses and nutritionists with maternal and child health experience, may be eligible for this degree program in some schools of public health. The Dr. P.H. is primarily for health professionals who intend to pursue research and university teaching.

Licensure

In the United States, obstetricians and pediatricians are the only physicians who may become maternal and child health specialists. To be so classified, they must be board eligible or board certified in their medical specialties (see Chapter 4). All other professionals must abide by the requirements of their primary professions.

Employment and Mobility

State, local and federal health departments, universities, clinics and international health organizations are the most typical places for employment in this field.

FOR FURTHER INFORMATION

See Chapter 4 on medical specialties (pediatrics, obstetrics and gynecology and public health) and nursing specialties.

PUBLIC HEALTH NUTRITION

Description

The field of public health nutrition represents a merger of selected aspects of biological and social sciences. The body of knowledge the nutritionist brings includes the nutritional requirements of people at various ages under varying environmental conditions, how to assess the nutritional status of population groups and nutrition problems in communities, and the psychological and social aspects of food practices and their implications for change. Nutritionists may plan national, international and local nutrition programs based on social and biological needs, evaluate programs, conduct research on needs and methods and teach.

Education

To enter a joint M.S. and M.P.H. program in a school of public health, students typically hold a bachelor's degree and have taken undergraduate courses in fields such as chemistry, human physiology, bacteriology, nutrition, dietetics, diet therapy and behavioral sciences. The M.S./M.P.H. program takes about two years of course work plus field training.

Licensure

Public health nutritionists are not required to be licensed. A person may elect to take a rigorous comprehensive examination to be qualified as a registered dietitian (R.D.). To maintain R.D. status, one must accumulate continuing education credits.

Employment and Mobility

Public health nutritionists work in agencies ranging from the local to the international level as well as in state and federal regulatory agencies. They teach in colleges, schools of nursing and other health professions schools; and do research, planning and education in hospitals and clinics. Age is not a serious barrier, although remaining current on science and nutrition knowledge is essential. Continuing education is very important in this field. There are good opportunities for planning and administration in nutrition programs.

FOR FURTHER INFORMATION

Associations

American Dietetic Association
620 Michigan Avenue
Chicago, IL 60611

Society for Nutrition Education
2140 Shattuck
Suite 1110
Berkeley, CA 94704

PUBLIC HEALTH SOCIAL WORK

Description

Public health social work specialists are administrators, planners, consultants and researchers in community health and medical care programs.

Education

An M.S.W. from a school of social welfare is required plus specialized training and/or experience in a health setting. Many public health social workers take advanced training in a school of public health leading to an M.P.H. degree.

Licensure

An M.S.W. degree and registration with the National Association of Social Workers (NASW) is required in some states (see Chapter 4).

Employment and Mobility

Public health social workers are employed in local, regional and state health and welfare agencies; maternal and child projects; prepaid health plans and hospitals; colleges and universities; planning agencies and consulting firms. Career advancement is through assuming higher administrative positions in organizations, proceeding through professional ranks and/or becoming a private consultant (see Chapter 4 on social work).

FOR FURTHER INFORMATION

Associations

American Public Health Association
1015 18th Street, N.W.
Washington, D.C. 20036

National Association of Black Social Workers
2008 Madison Avenue
New York, NY 10035

National Association of Social Workers
1425 8th Street, N.W.
Suite 600
Washington, D.C. 20005

CHAPTER 6: STRATEGIES FOR CAREER DEVELOPMENT

Sheryl Burt Ruzek

SETTING PRIORITIES

Establishing priorities is the first step one takes to realize career goals. If becoming a scientist or a health professional is an important goal, you will have to choose to devote considerable time and effort to your training and forego other, lower priority endeavors. You need to assign priorities on several levels, a step that keeps your plans from becoming overwhelming. Long-range goals may be ten or more years away; they define the general direction for making shorter-range plans. Middle-range goals lay out what you will do in the next year or two. These are significant steps that lead to realizing life goals. Short-range goals include mini goals (steps you will take in the next month or so) and micro goals (what you will do today, such as writing for a college catalogue or making an appointment with someone to discuss your career plans).

Time management consultant Alan Lakein (1973, p. 28-29) emphasizes that no list of goals is complete until you assign priorities and take some action. Mini or micro goals may indeed be the most important steps you can take toward implementing your career planning. Lakein suggests that priorities can be interpreted as large and small tasks that organize your actions to put you in active control of your time and ultimately your life.

To set priorities according to Lakein's system, assign the letters A,B and C to each item on your goal list. Assign A for items with the highest value; B for medium value; C for low value. Within each category, assign 1, 2, 3, 4 and so on to establish priorities. Then choose to do A tasks and leave B and C tasks for later. The value, of course, is relative. Playing the piano for a half hour every night might be an A task to one woman and a C to another depending on one's other goals.

Setting priorities on three levels helps one put weekly and daily activities into perspective. By being clear about middle-range and long-range goals, it is possible to assign priority to weekly and daily tasks that help one achieve major goals and eliminate activities that do not lead to goal attainment. To see how one interrelates goals and priorities, let us consider the following example.

Jane C., who wants to become a clinical psychologist, is 32 years old. She worked as a personnel analyst until three months ago when her son was born; she also has an eight-year-old daughter from a previous marriage. Over the past three years, Jane C. took graduate psychology courses hoping to improve her chances of being admitted to graduate school. She is now reexamining her goals and assigning priorities to help in organizing her time. Her goals and priorities are as follows:

Long Term Goals

A	B	C
1. Be able to speak Spanish when in Mexico during husband's sabbatical next year	2. Become a clinical psychologist	1. Learn skills for remodeling kitchen
2. Be involved in daughter's school activities	2. Grow vegetables	
3. Enjoy new baby - make it fun not just work		

To realize her long-term goals, Jane will choose middle-level goals that move her towards her A goals. She will also keep in mind ways of achieving B goals when time permits. For the coming year, Jane sets these goals:

Middle-Range Goals

A	B	C
1. Find volunteer work at daughter's school that might provide an opportunity to write a paper and get good letters of reference to get into graduate school	1. Learn Spanish	1. Grow vegetables
2. Put aside time each week to take baby to the park or to visit other babies		

Jane can now plan weekly and daily activities in terms of her middle-range goals. Not all of her routine activities will help her achieve her goals; but by planning, she will be sure to include activities that do. At the same time each week and each day, Jane will sit down and plan her week's major goal-oriented activities, and other activities that have come up. One week might look like this:

A	B	C
1. Register with Spanish Language Center to offer room and board to student in exchange for baby-sitting and language lessons	1. Buy daughter new shoes 2. Bake cookies for P.T.A.	1. Have lunch with mother 2. Shop for a washing machine 3. Go to a psychology lecture
2. Take baby for physical exam		

A	B	C
3. Go to the park		4. Clean the garage
4. Call school about volunteering		5. Weed garden

All of these activities either have to be done or Jane would like to do eventually. In planning her daily tasks, Jane will give priority to A tasks so that she doesn't get bogged down with trivial C tasks -- often things that can be put off indefinitely. Of course C tasks from this week may eventually become A tasks. The trick is to assess which tasks are most pressing at the moment so that they can be scheduled.

This week Jane decided that she will do one A task each day during the week and the B tasks if she has time. She knows that many things will come up that she can't anticipate in advance -- helping her daughter with a problem, mending, cleaning up a broken window. If these unanticipated problems arise, she will still be able to accomplish some major goal-oriented activities. If the week goes very smoothly, she may be able to call her mother and go out to lunch or weed the garden.

This is how Jane plans her first day:

Monday

A	B	C
1. Call Spanish Language Center	1. Take baby to park	1. Weed garden
2. Buy groceries	2. Start laundry	2. Buy shoes
3. Spend one hour cooking and cleaning up kitchen	3. Bake cookies	

Without this detailed planning, Jane could easily spend the day baking, doing laundry, cooking and cleaning and never get around to going to the grocery store or calling the Language Center. She might also feel rushed and frantic. By planning carefully, Jane can set realistic goals and feel a sense of accomplishment from completing them each day.

You can make time for taking small steps towards career goals if you remain aware of your priorities. Lakein (1973, p. 48-49) suggests that you put aside your best time each day, the time you concentrate best, for working on A goal tasks. Then, several times each day; ask yourself, "What is the best use of my time right now?" Doing something on an A goal is better than spending time on a task you have assigned a lower priority. Nonetheless, remain flexible. Over the course of a day, one's priorities can often change (Lakein 1973, p. 96-99).

AVENUES FOR CAREER EXPLORATION

If learning more about a career is an A goal, make a list of all the ways you can get more information. Then, schedule doing these career exploration tasks on a regular basis. This section will suggest some places to start.

The Library - a good first start

Libraries are excellent places to explore health careers. Reference librarians are professionals trained to assist library-users. They can direct you to important sources and instruct you in using catalogues and indexes. Take advantage of their knowledge - it's a valuable source and it's free.

1. Career Pamphlets

Public libraries and college libraries often have large collections of pamphlets on specific occupations. Call the library in advance to be sure it has such a collection. Ask a librarian for assistance if you need it.

2. School Catalogues

College and university libraries have collections of catalogues from hundreds of other institutions. Look through the catalogues to get an idea of what various schools require for admission and what specialized training they offer. Catalogues also give information on tuition and fees, financial aid, and courses you need for a degree. Most also list specific classes offered. Order catalogues of greatest interest. They are free or available for a nominal fee.

3. Card Catalogue

Check the subject headings in the card catalogue to find books about an occupation of interest or about career planning. Ask a librarian for assistance in selecting books or using the catalogue.

4. Periodicals

Check with the librarian to find out the titles of professional journals in your areas of interest. Browse through recent issues of journals such as the American Journal of Public Health, Social Work, and Nursing Outlook. Do the articles catch your interest? Read "letters to the editor" sections. What concerns do the people in this occupation have? Is there controversy over new licensing requirements? Are there new specialty areas forming? Read the job openings advertisements. Do the jobs sound exciting? Are there openings in your area? Are the salaries good?

5. Reference Material

Libraries have many reference volumes which cannot be checked out, but are available for your use. Librarians often assist persons using these works. For career exploration, look up state licensing requirements for specifi occupations and the addresses of local chapters of occupational associations at the reference desk. Indexes to periodical literature (journals and magazines) such as the Reader's Guide, Index Medicus, and Education Index all provide up-to-date references to recent articles on career issues.

Occupational Associations

National occupational associations offer a wealth of information free or for a small handling fee. Write to the Associations listed in Chapters 3, 4,

and 5 and ask for information on career opportunities, financial assistance, schools in your area, and educational and experience requirements for licensing. Also inquire about state and local chapters and ask for information on upcoming regional or national meetings. If professional associations are holding a convention or meeting in your area, inquire about attending. By going to such a meeting you will learn about current issues in the field and may meet people who can give you information about current educational and job opportunities. Attending such meetings is important for professional advancement, so starting early is highly desirable.

Practitioners and Teachers

An excellent way to learn about a potential career is to discuss it with someone already in that occupation. Your own physician, dentist, optometrist or other health professional may be able to refer you to a friend or colleague working in a field of interest. Faculty members in health professions schools may also offer career guidance. Call the school and ask to be referred to someone.

Volunteering

If you are serious about a health career, volunteer in a local health agency. It will give you an excellent opportunity to observe what health workers really do all day and will also put you in contact with professionals and paraprofessionals who will be able to give you career advice. There are interesting and varied volunteer opportunities for persons of all ages from teenagers to senior citizens.

Most hospitals have a volunteer coordinator who will interview you and take your application for a volunteer job. You will be assigned a regular job for a few hours each week and may also be asked to attend volunteer workshops to meet other volunteers and staff and to learn about policies and procedures. Nursing homes, family planning clinics, community health centers, women's health centers, and social service and rehabilitation organizations also offer volunteer opportunities. A good place to investigate openings in large communities is through the local volunteer bureau.

SELECTING A TRAINING PROGRAM

Once you have chosen a health occupation, many factors affect your selection of a training institution including entrance requirements, quality and reputation of the specific program in your field, location, tuition, availability of financial aid, opportunities for part-time employment, requirements for full-time or part-time attendance, availability of day and/or evening courses, and on-campus childcare. You will have to assess how important each of these factors is to you.

SELECTING A COLLEGE

For some students, planning to enter college begins during the junior or senior year in high school. Other women enter college later in life. Regardless of when you begin, you must allow adequate time to perpare and submit

your application. At four-year colleges applications usually are due by February for entry the following fall.

There are many types of colleges, both public and private, that offer different opportunities. Major types of higher educational institutions are described below.

1. Large, well-known public and independent universities that emphasize research are desirable institutions for students planning high-level health careers. A degree from a major university such as Harvard, Columbia or the universities of Michigan or California will be an asset when applying to a graduate or professional school. Their professional schools and undergraduate health sciences programs and premedical programs are noted for producing professional leaders. If your goal is a high-level career, a major university is an excellent choice. These are competitive institutions, and high grades are required for entry. Many competitive universities also select students on the basis of extracurricular activities, letters of reference, personal interviews and other evidence of outstanding potential scholarship.

Tuition at competitive universities ranges from a few hundred dollars in public universities to over $5,000 per year in independent institutions. Room, board and incidental expenses average an additional $3,000 per year.

2. Colleges and universities that emphasize undergraduate education vary in competitiveness. Some independent colleges, particularly those exclusively for women such as Wellesley, Smith, Mount Holyoke and Mills College, are extremely rigorous; and exceptionally high proportion of their graduates go on to earn advanced degrees and have distinguished careers. Tuition in these independent institutions is high -- up to $5,000 per year. Room, board and incidental expenses adds another $3,000 per year.

Other undergraduate institutions are less competitive and less expensive. Many colleges and universities that emphasize undergraduate education provide solid preparation for graduate work and/or offer excellent four-year professional training programs in fields such as nursing and occupational therapy. However, a baccalaureate degree from this type of institution will not be evaluated as highly as one from a more competitive institution when the student applies for graduate or professional school admission.

Costs vary greatly in undergraduate colleges. Tuition and fees in many of the less competitive independent institutions are as high as those charged by more competitive, prestigious universities. Tuition of $2,500-$4,000 per year is common. However, public institutions charge little or no tuition or moderate registration fees. Room and board and incidental expenses average $3,000 per year in all colleges and universities, regardless of the differences in tuition.

3. Community colleges, or junior colleges, are local public tax supported institutions that typically offer lower-division education (the first two years of college). Students planning paraprofessional careers can often obtain all of their training in these schools. Students planning professional careers can also attend and transfer to a four-year college or university for the last two years of a baccalaureate program. However, many competitive institutions limit the number of transfer students they accept, so if your goal is to receive a degree from such a college or university, it is best to apply directly as a freshman. Public colleges and universities generally have liberal transfer policies as long as students have passed required courses with acceptable grades. Students planning to transfer to a four-year institution are strongly advised to check transfer requirements when they <u>begin</u> their community college work.

Community colleges do not usually charge tuition, but may have small registration fees. The cost of room and board and incidental expenses can be under $2,000 if the student lives at home, or over $3,000 for independent living quarters. Inexpensive dormitory accommodations are not usually available.

To select the best school for yourself, many factors must be weighed: your future career plans, geographical location, relative quality of public and private institutions you might attend, your academic preparation and your financial status. Do not automatically rule out independent institutions with high tuition charges, even if you have limited financial means. Scholarships, loans and part-time work are often available to well-qualified students. It is also important to know that financial aid is often proportionately higher in institutions having high tuition, and the cost of room and board does not vary greatly. Thus, an outstanding student admitted to a competitive independent university might actually have to borrow or earn less money per year than a student attending a community college.

When choosing a college or university, assess your academic strengths and weaknesses realistically. Discuss possible choices with parents, friends, teachers and counselors. Use the library and community resources described in earlier sections. Order catalogues from schools of interest. If possible, visit the campus to get a "feel" for it. Go to the student union or women's center and talk to students already enrolled. Visit the departmental office in your major field to ask questions and get additional information. Write to the admissions office of each school you are interested in attending. Find out the following:

1. What tests are required for admission.
2. What applications, test results, transcripts and other materials the school requires.
3. When and how applications for scholarships or other financial aid are filed.
4. When and how many letters of recommendation are required.
5. What high school (or community college transfer) grade-point average is required.
6. What high school courses are required (you should do this over a year before applying so that you can make-up deficiencies if necessary).

Deadlines to apply vary from six to eight months before enrolling in major universities and prestigious colleges to only a few weeks or days in advance in some community colleges.

Entrance Requirements

Grades

High grades in high school are necessary to be admitted to major universities and many private colleges. A "B" average in college preparatory courses is the minimum eligibility requirement in most institutions, although special admissions programs for disadvantaged students may be options for some. College preparatory courses include sequences of high school classes in English, history, mathematics, science and foreign language at a level that prepares the student for college work. Students are strongly advised to complete a college preparatory high school program as a basis for any but the lowest-level paraprofessional health occupations. Women are especially urged to take the full math and science sequences, for these are the courses that most often prevent women from entering professional careers (Ernest 1976; Sells 1975).

Only a small proportion of all high school graduates qualify for high-status colleges and universities. Grade and course requirements are less stringent in many public and private teaching colleges. Community colleges only require that a student be a high school graduate or over 18 years of age. There are no specific grade requirements, but students may have to complete certain high school subjects to enroll in courses that carry transfer credit to a four-year college.

Examinations

Many four-year colleges require students to take the nationally standardized SAT (Scholastic Aptitude Test), used as evidence of preparation for college-level work. The SAT usually must be taken by October for the following fall admission, particularly if financial aid is sought.

Many students take the SAT during their junior year in high school for "practice" and to help them assess their strengths and weaknesses. By studying in weak areas before retaking the SAT, students can improve their scores. For further information, request "About SAT," a pamphlet prepared by the Educational Testing Service for the College Entrance Examination Board (CEEB). Write to: CEEB, Box 592, Princeton, New Jersey 08540.

College Application Procedures

Colleges and universities require students to complete an application describing their high school and previous college work. Request an application form early, and return it before the stated deadline. Transcripts with grades and courses completed are also required. If you are not notified by the college that all your materials are on file before the deadline for completing applications, inquire about the status of your application. Transcripts, letters of recommendation and other supporting material are easily misplaced, especially in large institutions that have thousands of applicants.

If you are planning a health career, declare your professional or preprofessional choice on your application. Many schools assign students faculty advisors for premedicine, prenursing and other preprofessional programs. Students entering four-year professional programs such as occupational therapy will be assigned to an advisor in that program. Students who are undecided on a career are strongly advised to declare a major in one of the life or social sciences closest to their areas of interest. Do not apply as an undeclared major, for you will be assigned an advisor on a random basis. An advisor in a department that prepares students for health careers training on the graduate level will be more likely to be able to advise you about course requirements for various types of professional careers.

To select a major, read the college catalogue carefully. Do the courses required for one major sound more interesting than those required in another? Are there several faculty members listed in your areas of interest? How do the faculty members rate in student guides available in many campus bookstores? If you are still undecided, make an appointment to see someone in the student advising center or in a department that seems interesting before you apply. Although you can change your major once you have enrolled, when applying to a competitive institution you may be able to write a stronger application if you have selected a major.

Four-year colleges have different types of admissions policies. Highly competitive private universities and colleges do not have standardized admission requirements, but choose entering classes from among the applicants they regard as most promising. High grades and test scores are automatically expected of applicants, and additional accomplishments are usually the key to being selected. When applying to these institutions, it is important to highlight your extracurricular activities such as working on a school newspaper, volunteering or holding responsible jobs. Letters of recommendation from teachers, employers or other persons who know you well may also be required. Submit all of these materials early to maximize your chances of being selected.

Many large public universities and colleges accept students who meet standard entrance requirements on a first-come, first-served basis. Sometimes the total number of students to be admitted is determined for the entire

institution, regardless of what majors students declare. In others, there may be a limited number of openings in specific departments or programs; inquire to determine your likelihood of being accepted. In these schools, early application is extremely important.

Community colleges are usually required to accept all students who meet their minimum standard requirements and who file their applications by the stated deadline. However, many specialized vocational programs are very popular and you may have to wait some time for an opening.

Some college applications require a statement of goals. You are generally expected to write a clear, concise statement about your educational or occupational goals. Briefly describe your educational and social background including information on your family life and community participation. If you are an ethnic minority student, indicate this. Describe how your background and your previous education has prepared you for college work and what you expect to gain from a college education. If you have specific occupational goals, or several alternative career contingency plans, describe them. Although screening committees look favorably on students who are interested in academic exploration, students who present themselves as having well-thought-out life goals may improve their chances for admission. Overall, emphasize positive experiences and interests, and avoid negative statements.

When you complete your application, ask someone else to read it and comment on it. Parents, friends, teachers, counselors can all be valuable readers by alerting you to errors in composition and suggesting information to include about yourself that you may have omitted. To make the best possible impression, type your application. Make a copy of the application form and fill it out before typing on the official form.

Although colleges do not usually ask for additional information, if you have extensive work or volunteer experience or have published or engaged in any unusual activities that you cannot describe on the standard application form, attach a resume of these accomplishments to your application. When applying to competitive institutions that select students from a large pool of applicants, it is especially important to make yourself stand out.

Application Fees

Fees are required for applying to four year colleges; community colleges are usually free. If you are unable to pay the application fee, write a cover letter explaining your financial situation. Ask for a fee waiver. If you do this, apply well in advance of the deadline so that other sources of assistance to pay application fees can be located if the fee waiver is denied.

Financial Aid

There are many sources of financial assistance available to college students. Most, however, require full-time attendance. The most common types of financial aid are scholarships, loans, work-study support and state apprenticeship programs. (See Locating Financial Aid in this chapter.)

Scholarships are awarded in various ways. Some are national or state competitions and the scholarships can be used at any school of your choice. The National Merit Scholarships and the California State Scholarships are examples of these types of scholarships. Most scholarships are awarded through the individual college or university. Many are designated for certain types of students such as members of specific ethnic minorities, women entering premedicine, women returning to school after a lengthly absence, women from a

specified geographical location. Read college scholarship listings carefully to see which might be appropriate to apply for in addition to the better known ones.

Scholarships range from a few hundred dollars to full tuition and partial living expenses each year. Some are for one year only; others may be renewed. Students receiving scholarships have no obligation other than maintaining an excellent academic record and attending special luncheons or other programs hosted by the scholarship donor.

Students who qualify for financial assistance are often eligible for work-study programs. Students select employment in campus or participating off-campus programs. Jobs range from clerical work to research assistant positions. In some institutions, academic credit can be earned for approved work-study programs by participating in a group workshop and writing reports on your work experiences.

Students entering paraprofessional occupations sometimes qualify for apprenticeship programs that provide living stipends and school fees. Small salaries may also be paid for performing clinical work that is a part of your training.

Loans are available through several programs: The National Direct Student Loan Program, federally insured students loans and university loans. Contact the college financial assistance office for further information.

SELECTING A PROPRIETARY TRAINING SCHOOL

Entrance requirements vary greatly between proprietary (privately operated) vocational schools that train health workers for paraprofessional careers. They often offer short training programs especially helpful to women who must prepare for paid employment rapidly. Most are legitimate operations, but some charge high fees for programs that do little to help students obtain employment. Students contemplating entering a proprietary school are advised to check with local consumer protection agencies to determine whether or not the school is a reputable institution. Be wary of schools that make fantastic claims about how their graduates are placed at salaries much higher than typically earned in your area or suggest that you can become a skilled professional with only a few weeks or months of training. Comparable training is often available free in community colleges.

There are several ways to investigate the reputation of a proprietary school you are considering. If a local community college offers a similar program, investigate the public program and try to find out how the programs are similar and different. Ask counselors or instructors in the community college what kind of reputation the proprietary school has. Or, visit the local state department of employment. Discuss the proprietary school with an employment counselor who specializes in placing paraprofessional workers in your area. She or he may have experience placing graduates of the school you are considering.

Most important, visit the proprietary school before you apply. How long has it been in operation? Does it have a placement program? Can counselors give you detailed information on employment opportunities and the probability of your being placed once you complete the training? Talk to recent graduates and current students; are they satisfied with the training? Ask employment counselors in local hospitals if they hire graduates of the proprietary school.

Proprietary schools are often expensive, and financial aid may be somewhat limited. Nonetheless, many such schools are eligible to enroll students on veterans' benefits or other public educational assistance programs including

state apprenticeship programs. Check with the school financial aid office for further information.

SELECTING A GRADUATE OR PROFESSIONAL SCHOOL

According to the Coordinating Committee on Graduate and Professional Advancement (CCGPA) composed of representatives from the nine University of California campuses, graduate recruiters have found that many students do not think seriously of graduate study until their senior year in college. Waiting until then can limit their immediate opportunities for advanced study. The CCGPA emphasizes that selecting the right graduate or professional school is best begun no later than the beginning of your junior year in college. If you begin planning in your senior year, you can still be successful in gaining admission by the fall following graduation, but you must act quickly. Plan to apply to three to five graduate schools chosen on the basis of the quality of the specific program in your field, rather than on the general reputation of the institution. Criteria recommended by the CCGPA in selecting a graduate or professional school are:

1. The faculty's areas of specialization and academic reputation that is based on the quality of faculty research projects, professional publications and activities.

2. Adequacy of the school's libraries, laboratories and other research facilities in your field.

3. The emphasis in the graduate program in relation to your career interests. Pay particular attention to the school's emphasis on research, teaching, theory and practice.

4. Affiliations and cooperative arrangements the school maintains with other educational and research institutions offering additional opportunities for advanced study.

Begin by talking with your faculty advisor and other faculty members in your field if you are currently enrolled in college. Also consult faculty and others in the profession you seek to enter, career advisors and the Educational Opportunity Advisors Program (EOP) on your campus. Ask them to suggest graduate programs or professional schools that may serve your particular goals and interest. Next, consult the catalogues of schools you are interested in attending. Catalogues are available in campus libraries and placement centers. Write to the graduate departments or schools for specific information and request admission and financial aid application forms. From each institution you are seriously considering, you need to learn:

1. What tests are required for admission.

2. When and what applications, test results, transcripts and other materials the school requires.

3. When and how applications for grants, fellowships or financial aid should be filed.

4. When and how many letters of personal recommendation are required by the school.

5. What grade-point average and what undergraduate courses are required for admission to graduate standing.

It saves time to prepare letters requesting information and applications all at once. To meet deadlines for filing admission and financial aid applications, forms usually must be obtained one year before the date you expect to begin attending a graduate or professional school. After you collect this information, make yourself a calander of deadlines to complete various parts of the application for each school.

Graduate and Professional School Requirements

Grades

High undergraduate grades are required for admission to graduate standing in recognized graduate and professional schools. The standard minimum requirement is a B average, although some institutions have special admission programs for disadvantaged students or reentry students who may have poorer undergraduate records.

Older students should specifically request evaluation on the basis of recent grades if there is a disparity between their early college grades and grades received recently. In fact, older students can sometimes gain admission by taking a series of courses on a non-degree enrollment basis and use their recent high grades as evidence of adequate preparation.

Examinations

Students planning careers in the sciences, public health and some health professions, are usually required to take the nationally standardized Graduate Record Examination (GRE), used as a criterion for selecting students. The GRE includes an aptitude test and an advanced test. Each takes approximately three hours. The aptitude test, required by most graduate schools, evaluates verbal and quantitative ability. The advanced placement test, given in more than 20 fields of study, evaluates your knowledge in your major field as well as your ability to reason with and apply that knowledge. A booklet, "Graduate Record Exam," available in campus bookstores and libraries, describes the kinds of questions found on the GRE. The following study guides are also useful for students preparing for the GRE. They are available in paperback in most college bookstores.

How to pass higher on the Graduate Record Examination Aptitude Test
Arco Publishing Company
210 Park Avenue South
New York, New York 10003

Barron's How to Prepare for the Graduate Record Examination
Barron's Educational Series, Inc.
Woodbury, New York

Many graduate schools require you to take the GRE in October or December to apply for admission in the following fall. Thus, for example, to enter graduate school in fall 1980, you need to take the GRE in October or December of 1979.

The cost of the GRE is currently $13.00. Fee waivers for the GRE are available to seniors receiving financial aid. For information about the fee waiver, consult your campus financial aid or EOP office. For further information and registration, contact:

Graduate Record Examinations (GRE)
Educational Testing Service
Box 955
Princeton, New Jersey 08540

There are specialized national examinations for certain health professions. For admissions to these professional schools, the following examinations are required. For further information contact the organizations listed.

Professional School	Test Required	Contact
School of Medicine School of Osteopathic Medicine School of Podiatric Medicine	MCAT (Medical College Admission Test)	MCAT Registration The American College Testing Program Iowa City, Iowa 52240 Association of American Medical Colleges One Dupont Circle, N.W. Washington, D.C. 20036
School of Dental Hygiene	ADHA Aptitude Test and Dental Hygiene Performance Test	ADHA Aptitude Testing Program Room 1212 211 E. Chicago Ave. Chicago, Illinois 60611
School of Dentistry	DAT (Dental Aptitude Test)	DAT Division of Educational Measurements American Dental Association 211 East Chicago Avenue Chicago, Illinois 60611
School of Optometry	OCAT (Optometry College Admission Test)	OCAT The Psychological Corporation 304 East 45th Street New York, New York 10017
School of Pharmacy	PCAT (Pharmacy College Admission Test)	PCAT The Psychological Corporation 304 East 45th Street New York, New York 10017
School of Veterinary Medicine	VAT (Veterinary Aptitude Test)	VAT The Psychological Corporation 304 East 45th Street New York, New York 10017

Business School -	GMAT (Graduate Management Admission Test)	GMAT Educational Testing Service Box 966 Princeton, New Jersey 08540

Letters of Recommendation

Each graduate or professional school you apply to will require at least three individual letters of recommendation from college faculty members or other individuals who know your work well. For example, a letter of recommendation from a current supervisor may be appropriate for a person entering a graduate school of public health after working in a community health center for several years. A recommendation from a hospital volunteer coordinator or the director of a social service agency might be useful in applying to a school of nursing or social welfare.

What is important is to request recommendations from people you can rely on to provide good, personalized letters. The most effective recommendations are likely to come from staff, faculty or community people who know you and your work well, who will talk about you as a person, as a student and as a worker, and are able to assess your potential for successful graduate study.

Students who attend large universities need to make an effort to get to know faculty members so that they will be able to obtain personal recommendations. Older women who have been out of school for some time may have difficulty getting letters of recommendation from faculty members. If you live near your undergraduate institution and knew one or more faculty members well as an undergraduate, write to her or him and identify yourself as a former student giving enough details to help the instructor place you. Describe your plans for graduate study, send a current resume of your education and relevant paid and volunteer work experience, and state that you would like to make an appointment to discuss your career plans. Include your day and evening telephone number and call to inquire about an appointment if you have not been called within a week or two. During the appointment you might mention things you took from him/her. If you still have term papers, examinations, grade slips or transcripts, make copies to leave so that he/she will have specific information to use to write a recommendation. If your undergraduate college is a long distance away, you might try accomplishing this by a combination of mail and telephone.

Older students can also get faculty references by enrolling in continuing education courses or summer school where it is not necessary to be admitted to graduate standing. A student who does well in such a class, and discusses career plans with the professor, can often obtain an excellent recommendation.

Some reentry women with undergraduate degrees in the sciences have been successful in getting recommendations and assistance in entering graduate school by volunteering as research and laboratory assistants for faculty members. A favorable recommendation from a current faculty member who is in a position to evaluate your work performance can be extremely valuable.

Making Up Deficiencies

Do not become discouraged if you discover that you lack certain undergraduate courses required for entry into a graduate or professional school program. These deficiencies can be made up through continuing education courses, often offered in the evening, or by enrolling as a non-degree student in a four year college or university.

Completing the Graduate School Application

Many schools require a single admission application to graduate status. However, others require an additional one for the department or professional school. In addition to the general requirements, many graduate departments have special requirements for new applicants such as tests, portfolios or personal interviews. Write to the dean or chair of each department or school you are applying to and ask about application requirements in addition to those set by the graduate division.

Early submission of your applications is strongly advised, because many graduate and professional school spaces are filled well in advance of the stated application deadlines. Many departments also have application deadlines that are earlier than those stated for the university as a whole. Some schools and departments admit graduate students in the fall only; others make provision for mid-year entry.

Be sure that each application is complete and accurate. Competition for graduate and professional school admission is keen and applicants greatly outnumber the places available. Because your application must stand as your presentation of self to persons who have little personal information about you, the appearance of your application as well as the information on it is important.

Writing the "Statement of Purpose"

Applications for graduate study usually require a "Statement of Purpose." You must write a concise, well-written essay about your background and your reasons for pursuing graduate study. Admission selection committees place great importance on the "Statement of Purpose" because it demonstrates your writing skills and your ability to present ideas in clear, coherent language. It also provides information that helps them evaluate whether or not your interests can be appropriately pursued in a particular department or program. The following general outline suggested by the CCGPA may help you organize your statement.

I. OPENING PARAGRAPH: State your general intention for graduate study and introduce yourself to the selection committee. Committee members read many applications, so you must grab their attention; make yourself interesting to them.

II. BACKGROUND: Describe experiences that are the foundation for graduate work. Relevant background may include:

A. Your minority status and ethnic background.

B. Your status as a reentry woman.

C. How your undergraduate education relates to work you intend to pursue in graduate or professional school.

D. Specific learning experiences that indicate your motivation and inspiration for continued study.

E. Other relevant experiences such as paid or volunteer jobs, community activities and significant family experiences. Specify your duties and responsibilities, give names of organizations and provide dates (years) for activities in chronological order of your participation.

III. QUALIFICATIONS FOR GRADUATE STUDY: Indicate your knowledge of and interest in your field. Describe personal attributes and qualities that suggest that you will complete graduate study successfully such as determination in achieving goals, willingness to work hard, taking initiative, perseverance, capacity for developing ideas and working independently. Give examples of situations in which you have demonstrated these qualities.

IV. GOALS AND OBJECTIVES: Specify exactly what you wish to pursue in graduate school and why. Then discuss how you intend to combine your graduate study with previous knowledge and experience and describe the impact you envision having on society, the community or a particular agency, with your advanced degree.

V. CLOSING PARAGRAPH: Leave the reader with a strong sense that you are qualified and will be successful in graduate school.

Make your "Statement of Purpose" clear and concise; do not ramble or give irrelevant information. Talk about yourself and your experiences positively and avoid negative experiences. After you have written your "Statement of Purpose" ask friends and advisors for constructive comments and criticism. The CCGPA proposes this "Rule of Thumb." On the basis of your written statement would you be inclined to admit yourself to graduate school? If you cannot answer "yes," your statement still needs work.

Submitting Additional Material

Graduate schools often request additional material such as written work, publications, portfolios. To make your application as interesting and informative as possible, include additional material -- even if it is not specifically requested. If you have extensive work experience or have participated in community and volunteer programs, attach a resume to your application. If you have been published, include a copy of the material. Let the admissions committees know about your special accomplishments and experiences. Providing these extra bits of information can increase your chances for being selected.

Application Fees

Fees are always charged for graduate or professional school applications. If you are unable to pay the application fee, attach a cover letter explaining your financial need and request a fee waiver.

Financial Assistance for Graduate Study

Primary sources of financial assistance available to graduate students are fellowships, scholarships, traineeships, teaching and research assistantships, and loans. (See Locating Financial Aid in this chapter.)

Fellowships, scholarships and traineeships may be national, state or institutional. Some national fellowships awarded by agencies such as the National Science Foundation and the Danforth Foundation are awarded directly to students for use at any institution they choose to attend. Institutional fellowships, scholarships and traineeships are awarded to students by specific training institutions and cannot be used anywhere else. Fellowships, scholarships and traineeships can range in amount from several hundred dollars to several thousand dollars per year. Some are given on a one-time-only basis; others are renewable for the entire period of graduate training. Students receiving fellowships and scholarships usually have no obligation other than to achieve excellence in their studies. Some traineeships require students to commit themselves to several years of research or teaching in a college or university after receiving their degrees.

Assistantships are awarded by graduate departments for teaching or research performed in the department. These awards often include a reduction in tuition as well as a "salary." Assistantships provide both financial aid and valuable work experience.

Loans and grants-in-aid are offered by some institutions. There are three general loan categories: the National Direct Student Loan Program; federally insured student loans; university loans. Contact the financial assistance office at your institution for additional information.

ADMISSION OF OLDER STUDENTS

Older students are routinely admitted to all community colleges and public institutions at the undergraduate level as long as they meet standard admission requirements. Gaining admission to extremely competitive private colleges and universities is more difficult, especially at the graduate level. Traditional health professions schools have rarely enrolled students over the age of 35, although exceptions are sometimes made. Women who have undergraduate degrees and/or master's degrees in the sciences often encounter resistance to their beginning doctoral programs in their late thirties, although policies vary not only between different universities but between individual departments. Research oriented departments may be less likely to enroll older students than departments emphasizing teaching or applied practice. There is also a greater willingness to accept older women into masters' than doctoral programs. In general, schools of social work, public health and management are most receptive to older students (Hiestand 1971, pp. 55-66).

In general, the older the applicant, the higher the person's qualifications must be to be admitted. There are also numerous requirements which may work against admission of older students even when there is no official policy or bias against age, per se. Some graduate schools favor candidates who have completed their undergraduate work within five years. Others refuse to grant credit for course work taken earlier. Older students may find standardized entrance examinations difficult (Brandenburg 1974). The elimination of part-time enrollment, a trend in some institutions, also limits older students' opportunities to test their capacity, establish credentials, acquire references and update skills before undertaking full-time programs (Hiestand 1971, pp. 63-65).

Despite these barriers, some institutions have a very liberal, open stance towards admissions. Many religiously oriented schools maintain an open stance because their main purpose is to serve their religion and its institutions.

Catholic universities are especially willing to admit older students, particularly those who are engaged in related work activities or who are seen as potential contributors to society (Hiestand 1971, pp. 67-68).

In some areas there are special programs to assist older applicants (Brandenburg 1974). The National Association of Social Workers, for example, actively promotes a second careers program directed at people in other fields or middle-aged women returning to the labor force. The School of General Studies at Columbia University has operated a new careers program to help persons enter professional services fields; many graduate schools of business or management run special master's degree programs for students over 30 (Hiestand 1971, pp. 68-69). The Radcliffe Institute has pioneered in providing women scientists and health professionals reentry or late entry career opportunities.

Financial aid is generally available to full-time admitted older students. Part-time aid is difficult, if not impossible, to obtain (Brandenburg 1974). Some schools prefer funding persons without dependents so that additional family support stipends do not have to be awarded; others give preference to older students in awarding stipends. Older students are more likely than younger students to finance their training through loans, and the size of their loans is generally larger to meet their greater needs. Overall, the barriers to awarding financial aid may be less formidable than the unwillingness of many institutions to admit older students (Hiestand 1971, pp. 75-76).

PART-TIME STUDENTS

Most of the MODVOPP schools (Medicine, Osteopathic Medicine, Veterinary Medicine, Optometry, Pharmacy and Podiatry) require full-time enrollment. Many of the allied health professions schools and some paraprofessions training programs make provision for less than full-time enrollment if women must work or have heavy family responsibilities. Although many graduate programs require full-time enrollment, women can often negotiate light course loads and spread research or independent study projects out over the summer or over an extra year. Because these arrangements are typically made on an individual basis, do not become discouraged by printed statements that full-time study is required, particularly if you only need a slight reduction in your program.

Women often hesitate to study medicine because of the long years of internship and residency required beyond medical school, years when they hope to have children. Today, more and more institutions offer part-time residency options allowing students to complete their training over a longer period of time. The Harvard Reduced-Schedule-Residency Program pioneered opportunities of this type and publishes directories and up-to-date information on opportunities in all of the medical specialities (Reduced Schedule Residency Newsletter).

Graduate and health professional programs resist plans for part-time enrollment partly on grounds that intense socialization is necessary to produce competent health professionals. From a practical standpoint, it is easier to have an entire cohort of students progressing at the same speed than to have students working at their own pace. In the health professions, providing continuity of care to patients is also of concern. Despite these objections, part-time training is gaining in popularity. Women interested should explore all possible opportunities and look for innovative ways to make less than full-time training successful.

Women who undertake part-time training -- be it in one of the MODVOPP schools or in a community college paraprofessional program -- do so because of

conflicting demands on their time. The multiple responsibilities of a job, home and family can create serious strains, and women need to make realistic assessments of how much they can undertake at a time.

ETHNIC MINORITY STUDENTS

Graduate schools and programs committed to enrolling racial and ethnic minorities often have difficulty finding interested, qualified students. The Educational Testing Service (ETS), at the request of the Graduate Record Examinations Board, has developed the Minority Graduate Student Locater Service. Participating institutions use the Locater Service to identify minority persons interested in graduate education and minority students may find it a useful aid in selecting a graduate school.

If you are a United States citizen and a second-term junior, a senior or a college graduate in the U.S. or Puerto Rico, you may register with the Minority Graduate Student Locater Service at no charge. Your name, along with selected background information you provide, will be sent to participating institutions when they request names of students with your ethnic background, regional preference, degree objective and major field of interest. Interested graduate schools will correspond with you directly and provide information about the procedures to follow in applying for admission.

To register for the Locater Service, use the registration form from the National Administration Edition of the GRE Bulletin. You may use the form to register for both the Locater Service and the GRE, or for the Locater Service only. For more information contact your graduate division office or write to:

GRE, Educational Testing Service
Box 955
Princeton, New Jersey 08540

There are also many special recruiting programs throughout the United States designed to bring more ethnic minority students into health careers. For example, one of the programs operating successfully for over a decade is the Tulane University Medical Education Enrichment Program that provides outreach and special services to disadvantaged students (Epps et. al. 1978). In California, the State Department of Health sponsors a Health Professions Careers Opportunity Program (HPCOP) to increase minority enrollment and retention in the state (Montoya 1978). There is also an active program to recruit Spanish-speaking students into health careers through the University of California, Berkeley, School of Public Health. Call or visit a college EOP office to locate such programs in your area.

LOCATING FINANCIAL AID

There are many sources of financial aid for health careers training. The financial aid office at any postsecondary educational institution will provide current information on request. There are also national resources for locating financial assistance. The following sources are particularly useful to women contemplating health careers training.

The United States Health Resources Administration sponsors "Dial A Scholarship." Call the toll-free number 800-638-0824, for the Public Health Service National Health Service Corps and inquire on where to obtain financial aid in your field. Or write to:

National Health Service Corps
Scholarship Program
Center Building, Room 544
3700 East-West Highway
Hyattsville, MD 20782

Directory of Financial Aids for Women (200 pages, published in 1978) is a comprehensive guide describing financial aid for high school through post-doctoral levels with an annotated bibliography of other directories. Check with libraries, women's centers and counseling offices to use this resource. Or, it may be ordered for $15.95 from:

Reference Service Press
9023 Alcott Street
Suite 201
Los Angeles, CA 90035

Financial resources packets are available from the Women's Educational Equity Community Network (WEECN). This organization will also search financial aid programs for specific careers. Write to:

WEECN
Far West Laboratory for Educational
Research and Development
1855 Folsom Street
San Francisco, CA 94103

For graduate fellowship funds in the health sciences, contact:

National Science Foundation
Fellowship Office
National Research Council
2101 Constitution Avenue, N.W.
Washington, D.C. 20418

Danforth Foundation
222 South Central Avenue
St. Louis, MO 63105

There are many fellowships and scholarships designed to bring more ethnic minorities into health professions. The following is a partial list of organizations that will provide information on financial aid for specified minority applicants.

Native Americans	United Scholarship Service, Inc. P.O. Box 18235 Denver, CO 80218
Chicanos Native Americans	Educational Testing Service P.O. Box 200 Berkeley, CA 92704
Puerto Ricans	Educational Testing Service Box 2822 Princeton, NJ 08540
Black Americans	The National Fellowship Fund 795 Peachtree St., N.E. Atlanta, GA 30308
Black Americans Chicanos Native Americans Mainland Puerto Ricans	National Medical Fellowship, Inc. 3935 Elm Street Downers Grove, IL 60615
Black veterans with at least one year V.A. Educational Assistance eligibility	Martin Luther King, Jr. Fellowship Program Woodrow Wilson National Fellowship Foundation Box 642 Princeton, NJ 08540

SURVIVING HEALTH CAREERS TRAINING

Your experience as a student in any training program is influenced by many factors. Your personal characteristics, personality, academic preparation and motivation for enrolling affect your experience. The "fit" between your educational goals and an institution's emphasis is particularly important, as are certain other features of the school, including the proportion of women students in each class. (See references in Chapters 3, 4 and 5 for studies of women in career training programs.)

Women students' experiences in traditionally male professional schools were investigated during the early 1970's by Urban and Rural Systems Associates (URSA) under contract to the Women's Action Program of the United States Department of Health, Education, and Welfare. The 27 MODVOPPP (Medicine, Osteopathic Medicine, Dentistry, Veterinary Medicine, Optometry, Podiatry, Pharmacy, and Public Health) schools studied were rated best, good and poor for providing a supportive environment. The six schools rated best averaged 31 percent female students in the first-year class, whereas the proportion of women in the good schools was only 26 percent; poor schools averaged only 17 percent women (Women's Action Program 1976, Vol. 1, p. 136).

The most supportive schools also differed from less supportive schools in their recruitment, admissions and educational systems. Schools in the best group were more likely than good or poor schools to have diversified admissions committees, flexible curriculum, key figures such as deans who publicly supported and legitimated women's presence, sufficient numbers of women students and faculty to serve in integral roles, multiple constituencies (including students) involved in decision-making, and an overall atmosphere of respect for students as mature, capable individuals (Women's Action Program 1976, Vol. 1, pp. 143-44).

Another study, conducted by Mary Howell, former associate dean of students at Harvard University School of Medicine, revealed a wide array of overt and subtle forms of discrimination against women medical students (Campbell 1973). These same types of discrimination have also been found in the other traditionally male health professions training schools (Women's Action Program 1976, Vols. I-X). Students respond to these forms of discrimination in three broad ways. Students often engage in protective denial by ignoring or denying evidence of discrimination. Others react with anger, that can be both a strength and a handicap. Another response is to give constructive support to other women (Campbell 1973, pp. 45-61). These reactions are not mutually exclusive, and individuals vary in the degree to which they respond in one way rather than another.

Based on the responses of women medical students, Dr. Howell offers the following advice to women medical students; it is equally useful to women in other health training programs where they find themselves in a sexual and/or ethnic minority. Think carefully about your own feelings and reaction to discrimination against women and/or ethnic minorities and consider your own coping mechanisms and alternative ways of dealing with situations. When you begin school, and throughout your training, seek out others, both male and female, who think and feel the way you do. Maintain contact with supportive persons. Do not get swept up into excessive rote memorization and become isolated by trying to be first in the class rather than well-grounded in basic science. Look for and try to organize group support, keeping in mind that a support group provides just that, and is different than a group that provides support through taking action toward common goals. If you believe that all women share the problems of sex discrimination, maintain contact and friendship with persons outside your own professional community. Remember that isolation, independence and competition often prevent women from helping each other (Campbell 1973, pp. 78-79).

Women in health professions training schools find that joining women's groups of various kinds helps them maintain equilibrium and perspective during their training that is rigorous and often grueling. Some institutions openly support and encourage women's groups, whereas others leave their formation up to students themselves. Older women health professionals sometimes participate in these support groups. In some schools, female mental health professionals

also meet with the group. In one such program at the University of California, San Francisco, a woman psychiatrist on the clinical faculty met weekly with women medical students who reported surprise at discovering that many of the problems they had previously thought to be peculiar to each of them were actually shared by many women students. This discovery relieved much anxiety, and provided an opportunity to learn how different women handled difficult situations.

Regardless of the type of school one attends, developing close ties with fellow students is important for both personal and professional development. Women who are different in significant ways from their classmates are especially in need of group support. They also need to make efforts not to exclude themselves from their fellow students.

Ethnic Minority Women

Ethnic minority women often find that many of their problems are shared by other women, regardless of race. However they may have special needs for support from members of their own ethnic group, too. Because their actual numbers are often small in a school, ethnic minority students often form organizations that cross disciplinary lines, bringing together minority students in all of the health professions schools on campus; such groups can be extremely helpful.

Older Women

Older women returning to school or starting college later in life often feel isolated and different than their classmates. Older women derive great support from finding one or more other students in similar circumstances with whom they can share concerns and socialize informally. Women with young children can sometimes work out cooperative childcare and housekeeping arrangements and help each other out in emergencies.

School officials sometimes report that older women students, who feel a kinship with each other, are very "clubby." The key to successful graduate study often turns on how well students integrate with other students. Older students do gradually integrate, are accepted by other students, begin to have lunch with them, talk over common problems and even socialize with younger students. The more fully older students accept their student status, the more likely they are to succeed (Hiestand 1971, pp. 8-81).

University officials' academic appraisals of older students differ widely. Some argue that older students are far less likely to be outstanding or to rise to leadership positions (Hiestand 1971, pp. 76-82). Others believe that older students are more committed and serious, and prefer older students because of their experience and maturity. Recent studies reveal that older students are less likely to be in academic difficulty or feel unsure of educational goals than younger "college age" students. Counselors find that older students often underestimate their abilities and are over-qualified for the programs in which they enroll. Thus a major concern of counselors is to reassure older students that higher aspirations are often realistic (Roelfs 1975).

Seek Help for Academic and Emotional Problems

Students who have difficulty with their academic work are strongly advised to seek help immediately from faculty advisors, student counseling services or special programs on campus designed to keep students from dropping out

unnecessarily. If physical or mental health problems become obstacles to satisfactory performance, student health service personnel can be consulted. Students are sometimes hesitant to seek counseling from on-campus mental health professionals because of potential lack of confidentiality or concern that their emotional problems will have a negative effect on their evaluations as students. For students who have such concerns, local community mental health centers or women's groups might be alternative sources for obtaining help.

FINDING A JOB AND MOVING UP

Completing training is only the first step in career development. Finding your first job in your chosen field and advancing in your career are still ahead. Planning these phases of your career is just as important as planning for your training. Use the career ledger in Chapter I to help make career decisions. After you assess your job goals, write a resumé and begin a job search.

Writing a Resume

The resume is a summary of your educational and occupational history. It is also an example to potential employers of how you organize information and present yourself. A clear, concise resume containing relevant information makes a good impression. It is used to obtain employment interviews and provides prospective employers with enough background information to give you a meaningful job interview. Your resume should include the following information:

1. Current Vital Facts - name, address, phone number

2. Job Objectives - State what kind of job you want. (Academic scientists and top level professionals often omit this on the resume and include it in a cover letter sent with the resume.)

3. Background Data - List education, licenses, memberships, publications and other information relevant to the position you seek.

4. Employment History - List previous positions in chronological order placing your current or most recent position at the top of the list. Briefly describe your responsibilities.

5. Volunteer History - List volunteer activities, especially if you have no recent paid employment history. Briefly describe your responsibilities.

6. References - Give the names, positions and addresses of two or three persons whom an employer may contact regarding your previous work record or qualifications. Former employees, supervisors or co-workers in previous positions (either paid or volunteer) make good references, as do former teachers. If you have never worked on a paid or volunteer basis, people who know you well such as members of the clergy or social workers may be listed.

The following resume is an example of what such a document looks like.

Resume

September 1978

Name: Mary Ann Jones

Address: 234 Oak Street, San Francisco, CA 94128

Telephone: 415 786-3874

Job Objectives: To find a health education position where I will be able to work with teenagers or young adults. I am especially interested in working in the area of sex education, contraceptive counseling or prenatal education.

Education: M.P.H. in health education, Columbia School of Public Health, 1970.

B.A. in psychology, University of Illinois, Chicago Circle, 1968.

Professional Affiliations: American Public Health Association

Publications: "Counseling Pregnant Teenagers in Contraceptive Methods," Family Planning Perspectives 45 (Spring) 1977. Coauthor with Lucy Armstrong, M.S.W.

Employment History: Health educator, San Francisco Department of Public Health, Sunset Health Center, 1972-1973. Developed a drop-in discussion group for pregnant women and counseled low income pregnant patients.

Health educator, Margaret Sanger Clinic, New York City, 1970-1972. Planned and carried out contraceptive education campaign for teenagers in conjunction with other family planning agencies in the area. Wrote brochures, planned programs, led workshops.

Volunteer Activities: Volunteer health educator, counselor, Planned Parenthood of San Francisco, 1977-1978. Developed outreach contraceptive counseling program for teenagers; counseled pregnant teenagers. Coauthor of an article on counseling with the supervising social worker.

Chair, vaccination program, Tiny Tots Nursery School, San Francisco, 1976. Organized and carried out survey of vaccination records of children. Presented a program on the importance of regular vaccination and booster shots to parents' club.

References: Lucy Armstrong, M.S.W., Supervising Social Worker, Planned Parenthood, 3490 Steiner Street, San Francisco, CA 98765

Jennifer Jameson, R.N., M.S., Clinic Supervisor, Sunset Health Center, 2876 35th Avenue, San Francisco, CA 97584

Margaret Hennigan, M.A., Director, Tiny Tots Nursery School, 543 Arguello Boulevard, San Fransico, CA 97856

The Job Search

Strategies for finding your first position differ widely depending on the field you enter. Scientists and health professionals are often sponsored by professors who actively seek to place them in good positions. Women and minorities have been largely excluded from mainstream "old boy" networks. In recent years women in the sciences and health professions have formed their own organizations and informal networks. Ethnic minorities often participate in similar informal channels to help place colleagues in new positions.

As the academic job market contracts and Affirmative Action regulations require job openings to be advertised nationally, the "old boy" system for placing new professionals may be decreasing in effectiveness. Nonetheless, students benefit greatly from faculty sponsors who are willing to contact colleagues and write strong letters of recommendation. Sponsors may also have helped students to publish in scientific journals and present papers at scholarly meetings to enhance first job opportunities.

Students completing graduate work are strongly advised to become active in scientific associations during their graduate school years so that they will make informal contacts that will help them find appropriate employment. Professional associations also have job market and employment services. While you are still in school, discuss employment opportunities with faculty members and counselors in the student placement office. Many schools have excellent placement programs.

If you choose to work in a limited geographical area, make a list of all the possible places of employment. Contact departmental chairpersons in colleges and universities. Visit the personnel office in hospitals and clinics. Register with the state department of employment. Do not overlook public employment. There are often openings for health workers in city, county, state and federal facilities. Write a cover letter describing the position you seek and send it to prospective employers. Also send letters and resumes to friends and colleagues asking them to look for openings in your field.

When looking for a first job, many people become anxious and take the first job offered with little thought as to whether or not it is right for them. Unless your financial circumstances are so pressing that you must take any job offered, commit yourself to assessing how well you think you will like a position.

Remember that you have a right to ask questions, state your views even when they differ from those of the prospective employer, and reserve the right to take adequate time to make a decision about whether or not to accept a position. When you go for an interview, you are interviewing your prospective employers as much as they are interviewing you. Trust your intuition. If you come away from an interview with a negative feeling, the job may not be right for you. Keep looking until you find a position you like. Or, if you must, take a job that you have reservations about, but plan to make efforts to find one you prefer in the near future. Do not become discouraged too quickly. It often takes many years to discover exactly what is best for you.

Career Advancement

Women are less likely than men to have high aspirations for career advancement. In fact, many women choose slowly spiraling careers over rapidly upwardly mobile ones (White 1970). Some researchers argue that societal preoccupation with upward mobility and moving up hierarchies has led us to ignore certain career patterns that bring great satisfaction to many women. Lateral careers -- careers in which women seek greater levels of competency and autonomy, but do not aspire to moving up in a hierarchy -- are common in many of the health fields. These women often choose positions where they can function autonomously in direct patient care over moving up administratively or in scientific and professional associations (Lewin and Damrell 1978). For women who do wish to move up in a hierarchy, great commitment of time and energy is required. In the sciences, professions, and high level administration, participation in professional associations is crucial (see Chapter 2).

In recent years scholars have begun investigating the informal, rather than just the formal aspects of career development (Proceedings of the Conference on Women's Leadership and Authority in the Health Professions 1977). For women and minorities, the informal barriers may be as, or more formidable, than overt discrmination.

At the heart of informal career development is what has been termed the "patron system," support figures who help women advance (Shapiro, Haseltine and Rowe 1978). The "patron system," actually consists of a continuum of support figures, headed by "mentors," the most intense and "paternalistic" of the types of patrons. Mentors, powerful established figures, are actively involved in advancing their proteges; their relationships are marked by close emotional attachment. "Sponsors" are strong patrons but less powerful than mentors in promoting and shaping their proteges' careers. "Guides" are persons less able than mentors or sponsors to function as benefactors, protectors or champions of up-and-coming persons, but they are valuable in explaining many aspects of the system to newcomers. Secretaries, administrative assistants and other support staff are often effective guides. The term "peer pals," coined by Lynn Davidson describes the relationship between peers engaging in a reciprocal relationship to help each other to succeed by sharing information and serving as "sounding boards" for each other. None of these types of patron relationships can be legislated, each must be negotiated between individuals (Shapiro, Haseltine, and Rowe 1978). Women who want to move up in careers are strongly advised to devote attention to these types of interpersonal relationships.

Women need to reassess career goals regularly. Over time, a job you once enjoyed may become dull and uninteresting. Or the work environment may change. Your own work interests, family responsibilities and outside activities are also likely to shift over the course of your lifetime. Unless you reassess your current activities and long-term goals in light of changed circumstances, you may get stuck in a rut or find yourself pursuing goals that are no longer satisfying.

Mid-career changes for both men and women are becoming more common. Making a career change after 35 often involves completing additional education on either a full-time or part-time basis (Hiestand 1971). In many health fields additional training in management or administration, that often can be pursued on a part-time basis, opens new career opportunities. If you are interested in career advancement, contact the employee development office in your institution and local college and university continuing education divisions. Many offer programs designed specifically for people who hold full-time jobs.

Often it is necessary to change jobs to advance. If you find yourself "stuck" in a dead-end position, do not assume that your qualifications or current performance necessarily are holding you back. Many institutions and departments prefer to hire from outside rather than promote from within. This is often in the best interest of everyone involved, for a newly promoted person who remains in the same environment must often deal with the resentment of colleagues who were not promoted and superiors may find it difficult to acknowledge the individual's new status. To move up, one must give up the security of the familiar and be willing to risk new situations.

THE FUTURE FOR WOMEN IN HEALTH PROFESSIONS

Opportunities for women in health careers are varied, and will continue to change with the growth and development of the health and medical industry. Advances in technology, professional politics, consumer advocacy and moves toward public financing and cost-containment will all effect opportunities for women as health workers. As entrepreneurial medicine is replaced by bureaucratic medicine, women's participation in the established health professions may increase, for organizational practice reduces some of the strains between work and family responsibilities.

Career opportunities are likely to develop in several directions. Technological advances will lead to new, highly specialized careers in narrow fields. At the same time, increasing interest in primary and preventive care may lead to new low-technology careers. As the population as a whole becomes older, gerontological care will increase in importance, and may become a fully developed specialty in medicine, nursing, dentistry, social work and other health professions. Concern over environmental and nutritional causes of disease may result in new careers in public health. Often, television, newspapers and magazine articles give clues to areas in which health and medical work may expand.

Although changing careers in health and medical work often requires lengthy additional training, a combination of actual work experience and continuing education courses can open new opportunities. Increasingly, policy makers are looking for ways to update and upgrade health workers' skills without taking them off the job for extended periods. Educators and legislators are also looking for new ways to give people credit for their past education and experience to advance from one level of health work to another. While this "career ladder" approach is quite new, it is likely to gain popularity in coming decades. Women, who constitute the majority of all health workers at the lower levels, will benefit from these new avenues of career mobility.

In planning your future career, it is important to be alert to new opportunities and be willing to take some risks. New jobs in new areas are less certain than old, established ones, but also offer opportunities for creativity, innovation and career advancement. Your personnel desires and needs for security, challenge, stability and change may themselves change over time. Remaining aware of how your own career goals and needs change is a crucial step in career development.

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APPENDIX A: TABLES AND FIGURES

TABLE 1

EMPLOYED PERSONS IN SELECTED HEALTH OCCUPATIONS, BY SEX: 1970

Occupation	Total	Male	Female	Percent female
Total employed, all occupations	76,553,599	47,623,754	28,929,845	37.8
Total employed, specified health occupations	3,076,149	869,734	2,206,415	71.7
Physicians, dentists and related practitioners	538,746	493,081	45,665	8.5
Chiropractors	13,729	12,602	1,127	8.2
Dentists	90,801	87,691	3,110	3.4
Optometrists	17,219	16,527	692	4.0
Pharmacists	109,642	96,610	13,032	11.9
Physicians, medical and osteopathic	280,929	255,105	25,824	9.2
Podiatrists	6,026	5,566	460	7.6
Veterinarians	19,435	18,450	985	5.1
Health practitioners, n.e.c.[1]	965	530	435	45.1
Registered nurses, dietitians, and therapists	944,983	53,152	891,831	94.4
Dietitians	40,131	3,222	36,909	92.0
Registered nurses	829,691	22,332	807,359	97.3
Therapists	75,161	27,598	47,563	63.3
Health technologists and technicians	259,839	78,946	180,893	69.6
Clinical laboratory technologists and technicians	117,606	32,965	84,641	72.0
Dental hygienists	15,805	942	14,863	94.0
Health record technologists and technicians	11,164	881	10,283	92.1
Radiologic technologists and technicians	52,230	16,767	35,463	67.9
Therapy assistants	3,211	1,093	2,118	66.0
Health technologists and technicians, n.e.c.	59,283	26,298	33,525	56.6
Embalmers	4,749	4,528	221	4.6
Funeral directors	35,800	33,298	2,502	6.9
Health administrators	84,139	46,604	37,535	44.6
Opticians, and lens grinders and polishers	27,380	21,279	6,101	22.3
Health service workers	1,180,513	138,846	1,041,667	88.2
Dental assistants	88,175	1,866	86,309	97.9
Health aides, except nursing	118,907	18,305	100,602	84.6
Health trainees	17,655	1,106	16,549	93.7
Lay midwives	675	138	537	79.6
Nursing aides, orderlies, and attendants	717,968	108,946	609,022	84.8
Practical nurses	237,133	8,485	228,648	96.4

[1] Not elsewhere classified.

Source: U.S. Bureau of the Census, *1970 Occupation by Industry*, 1970 Census of Population, Special Report PC(2)-7C, U.S. Department of Commerce, Washington, D.C., 1972, Table 8, (Based on 20 percent sample).

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TABLE 2

FIRST-YEAR AND TOTAL ENROLLMENTS AND GRADUATES OF DENTAL SCHOOLS, BY SEX: 1968-69 THROUGH 1974-75

Academic year	Total	Male	Female	Percent female
	First-year enrollment			
1968-69	4,203	4,165	38	0.9
1969-70	4,355	4,297	58	1.3
1970-71	4,565	4,471	94	2.1
1971-72	4,745	4,598	147	3.1
1972-73	5,337	5,113	224	4.2
1973-74	5,445	5,054	391	7.2
1974-75	5,617	4,986	631	11.2
	Total enrollment			
1968-69	15,408	15,241	167	1.1
1969-70	16,008	15,834	174	1.1
1970-71	16,553	16,322	231	1.4
1971-72	17,305	16,971	334	1.9
1972-73	18,376	17,865	511	2.8
1973-74	19,369	18,533	836	4.3
1974-75	20,146	18,785	1,361	6.8
	Graduates			
1968-69	3,433	-	-	-
1969-70	3,749	-	-	-
1970-71	3,775	-	-	-
1971-72	3,961	3,921	40	1.0
1972-73	4,230	4,166	64	1.5
1973-74	4,515	4,423	92	2.0

Source: For 1968-69 through 1973-74 data—Bureau of Health Resources Development, *Minorities and Women in the Health Fields*, DHEW Pub. No. (HRA) 75-22 U.S. Department of Health, Education, and Welfare, Washington, U.S. Government Printing Office, 1974.

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TABLE 3

TOTAL ENROLLMENTS AND GRADUATES OF MEDICAL SCHOOLS, BY SEX: 1959-60 THROUGH 1974-75

Academic year	Total	Male	Female	Percent female
	Total enrollment			
1959-60	30,084	28,374	1,710	5.7
1964-65	32,428	29,925	2,503	7.7
1969-70	37,690	34,298	3,392	9.0
1970-71	40,238	36,360	3,878	9.6
1971-72	43,399	38,709	4,690	10.8
1972-73	47,366	41,284	6,082	12.8
1973-74	50,716	42,892	7,824	15.4
1974-75 [1]	53,554	43,893	9,661	18.0
	Graduates			
1959-60	7,081	6,676	405	5.7
1964-65	7,409	6,906	503	6.8
1969-70	8,367	7,667	700	8.4
1970-71	8,974	8,147	827	9.2
1971-72	9,551	8,691	860	9.0
1972-73	10,391	9,467	924	8.9
1973-74	11,613	10,349	1,264	11.1

[1] Estimated.

Source: American Medical Association, *74th Annual Report—Medical Education in the United States, 1973-74*, Supplement to *Journal of the American Medical Association*, Vol. 231, Chicago, 1975, p. 17.

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Reprinted with permission from: Pennell, Maryland and Shirlene Showell (1975) Women in Health Careers: Status of Women in Health Careers in the United States and Other Selected Countries. Washington, D.C.: The American Public Health Association. p. 72

TABLE 4

FIRST-YEAR AND TOTAL ENROLLMENTS IN SCHOOLS OF OSTEOPATHIC MEDICINE, BY SEX: 1968-69 THROUGH 1974-75

Academic year [1]	Total	Male	Female	Percent female
	First-year enrollment			
1968-69	521	500	21	4.0
1969-70	577	563	14	2.4
1970-71	623	606	17	2.7
1971-72	670	641	29	4.3
1972-73	810	754	56	6.9
1973-74	884	801	83	9.3
1974-75	974	868	106	10.9
	Total enrollment			
1968-69	1,879	1,826	53	2.8
1969-70	1,997	1,938	59	3.0
1970-71	2,151	2,090	61	2.8
1971-72	2,304	2,225	79	3.4
1972-73	2,579	2,463	116	4.5
1973-74	2,780	2,599	181	6.5
1974-75	3,139	2,872	267	8.5

[1] Data on graduates not available by sex.

Source: For 1968-69 through 1972-73 data—Bureau of Health Resources Development, *Minorities and Women in the Health Fields*, DHEW Pub. No. (HRA) 75-22, U.S. Department of Health, Education, and Welfare, Washington, U.S. Government Printing Office, 1974.

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TABLE 5

GRADUATES OF MEDICAL RECORD ADMINISTRATION AND MEDICAL TECHNOLOGY PROGRAMS: 1968-69 THROUGH 1971-72

Degree and academic year	Total	Male	Female	Percent female
	Medical record administration			
Bachelor's degree				
1968-69	136	3	133	97.8
1969-70	149	4	145	97.3
1970-71	148	7	141	95.3
1971-72	162	5	157	96.9
	Medical technology			
Bachelor's degree				
1968-69	2,846	295	2,551	89.6
1969-70	3,228	405	2,823	87.5
1970-71	3,145	390	2,755	87.6
1971-72	3,351	523	2,828	84.4
Master's degree				
1968-69	28	5	23	82.1
1969-70	71	14	57	80.3
1970-71	72	17	55	76.4
1971-72	76	30	46	60.5
Doctor's degree				
1968-69	0	0	0	-
1969-70	0	0	0	-
1970-71	4	3	1	25.0
1971-72	-	-	-	-

Source: For 1968-69 through 1970-71—Bureau of Health Resources Development, *Minorities and Women in the Health Fields*, DHEW Pub. No. (HRA) 75-22, U.S. Department of Health, Education, and Welfare, Washington, U.S. Government Printing Office, 1974.

For 1971-72—National Center for Education Statistics, *Earned Degrees Conferred*, 1971-72, U.S. Department of Health, Education, and Welfare, Washington, U.S. Government Printing Office, 1975. Also see earlier editions.

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TABLE 6

EMPLOYED REGISTERED NURSES, BY FIELD OF EMPLOYMENT AND SEX: 1972

Field of employment	Total	Male	Female	Percent female
All fields	778,470 [1]	10,989	766,416	98.4
Hospitals	499,594	8,646	490,948	98.3
Nursing homes	53,988	467	53,521	99.1
Schools of nursing	28,820	361	28,557	99.1
Private duty	38,923	365	38,558	99.1
Public health	39,096	316	38,780	99.2
School nursing	29,849	102	29,747	99.7
Industrial	19,403	264	19,139	98.6
Office (physicians or dentists)	52,390	167	52,223	99.7
Other specified fields	4,086	116	3,970	97.2
Not reported	12,321	185	12,136	98.5

[1] Includes 1,065 employed registered nurses whose sex was not reported.

Source: American Nurse's Association, *Facts About Nursing, 72-73*, Kansas City, 1974, pp. 14, 17.

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TABLE 7

GRADUATES OF OCCUPATIONAL THERAPY AND PHYSICAL THERAPY PROGRAMS: 1968-69 THROUGH 1971-72

Degree and academic year	Total	Male	Female	Percent female
	Occupational therapy			
Bachelor's degree				
1968-69	566	25	541	95.6
1969-70	609	25	584	95.9
1970-71	689	27	662	96.1
1971-72	733	45	688	93.8
Master's degree				
1968-69	43	2	41	95.3
1969-70	36	2	34	94.4
1970-71	51	6	45	88.2
1971-72	82	20	62	75.6
	Physical therapy			
Bachelor's degree				
1968-69	1,071	149	922	86.1
1969-70	1,091	169	922	84.5
1970-71	1,306	261	1,045	80.0
1971-72	1,425	289	1,138	79.8
Master's degree				
1968-69	41	11	30	73.2
1969-70	49	17	32	65.3
1970-71	75	19	56	74.7
1971-72	55	25	39	54.5

Source: For 1968-69 through 1970-71—Bureau of Health Resources Development, *Minorities and Women in the Health Fields*, DHEW Pub. No. (HRA) 75-22, U.S. Department of Health, Education, and Welfare, Washington, U.S. Government Printing Office, 1974.

For 1971-72—National Center for Educational Statistics, *Earned Degrees Conferred*, 1971-72, U.S. Department of Health, Education, and Welfare, Washington, U.S. Government Printing Office, 1975. Also see earlier editions.

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TABLE 8

TOTAL ENROLLMENT AND GRADUATES OF SCHOOLS OF OPTOMETRY, BY SEX: 1968-69 THROUGH 1974-75

Academic year	Total	Male	Female	Percent female
	Total enrollment			
1968-69 [1]	2,203	-	-	-
1969-70	2,488	2,415	73	2.9
1970-71	2,831	2,749	82	2.9
1971-72	3,097	2,985	112	3.6
1972-73	3,328	3,158	170	5.1
1973-74	3,529	3,268	261	7.3
1974-75 [2]	3,678	3,332	346	9.4
	Graduates			
1968-69	367	363	4	1.1
1969-70	444	421	23	5.2
1970-71	530	518	12	2.3
1971-72	684	666	18	2.6
1972-73	692	675	17	2.5
1973-74	793	759	34	4.3
1974-75 [3]	752	719	33	4.4

[1] Data not available by sex.

[2] Estimated.

[3] Fourth-year enrollment figures.

Source: For enrollment data 1969-70 through 1972-73—Bureau of Health Resources Development, *Minorities and Women in the Health Fields*, DHEW Pub. No. (HRA) 75-22, U.S. Department of Health, Education, and Welfare, Washington, U.S. Government Printing Office, 1974.

For 1973-74, 1974-75—Unpublished data from the Council on Optometric Education, American Optometric Association.

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TABLE 9

ENROLLMENTS AND GRADUATES OF SCHOOLS OF PHARMACY, BY SEX: 1968-69 THROUGH 1973-74

Academic year	Total	Male	Female	Percent female
	Total enrollment [1]			
1968-69	14,753	12,069	2,684	18.2
1969-70	15,292	12,104	3,188	20.8
1970-71	15,326	11,956	3,370	21.9
1971-72	16,808	12,621	4,187	24.9
1972-73	18,956	13,936	5,020	26.5
1973-74	21,287	15,258	6,029	28.3
	Third-to-last-year enrollment			
1968-69 [2]	5,406	4,322	1,084	20.1
1969-70	5,521	4,265	1,256	22.7
1970-71 [2]	5,694	4,345	1,349	23.7
1971-72	6,532	4,849	1,683	25.8
1972-73	7,546	5,452	2,094	27.7
1973-74	5,919	4,320	1,599	27.0
	Graduates			
1968-69	4,031	3,375	656	16.3
1969-70	4,366	3,574	792	18.1
1970-71	4,356	3,480	876	20.1
1971-72	4,416	3,419	997	22.6
1972-73	4,745	3,595	1,150	24.2
1973-74	5,414	3,999	1,415	26.1

[1] Enrollment in the last three years.

[2] Excludes University of Puerto Rico.

Source: Bureau of Health Resources Development, *Minorities and Women in the Health Fields*, DHEW Pub. No. (HRA) 75-22, U.S. Department of Health, Education, and Welfare, Washington, U.S. Government Printing Office, 1974.

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"Report of Degrees Conferred by Schools and Colleges of Pharmacy for the Academic Year 1973-74," *American Journal of Pharmaceutical Education*, Vol. 39, February 1975, pp. 51-52. Also see prior annual reports.

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TABLE 10

TOTAL ENROLLMENT AND GRADUATES OF SCHOOLS OF PODIATRY, BY SEX: 1969-70 THROUGH 1974-75

Academic year	Total	Male	Female	Percent female
	Total enrollment			
1969-70	1,095	1,085	10	0.9
1970-71	1,148	1,132	16	1.4
1971-72	1,268	1,252	16	1.3
1972-73	1,401	1,380	21	1.5
1973-74	1,623	1,583	40	2.4
1974-75	1,835	1,776	59	3.2
	Graduates			
1969-70	252	249	3	1.2
1970-71	241	236	5	2.0
1971-72	286	285	1	0.4
1972-73	259	258	1	0.4
1973-74	305	301	4	1.3
1974-75 [1]	353	349	4	1.1

[1] Estimated.

Source: Bureau of Health Resources Development, *Minorities and Women in the Health Fields*, DHEW Pub. No. (HRA) 75-22, U.S. Department of Health, Education, and Welfare, Washington, Government Printing Office, 1974.

for 1973-74, 1974-75—Unpublished data from the American Association of Colleges of Podiatric Medicine.

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TABLE 11

TOTAL ENROLLMENT AND GRADUATES OF SCHOOLS OF VETERINARY MEDICINE, BY SEX: 1968-69 THROUGH 1974-75

Academic year	Total	Male	Female	Percent female
	Total enrollment			
1968-69	4,779	4,417	362	7.6
1969-70	4,875	4,445	430	8.8
1970-71	5,006	4,539	467	9.3
1971-72	5,149	4,557	592	11.5
1972-73	5,439	4,698	741	13.6
1973-74	5,727	4,532	995	17.3
1974-75	6,005	4,784	1,221	20.3
	Graduates			
1968-69	1,006	950	56	5.6
1969-70	1,040	961	78	7.5
1970-71	1,022	946	76	7.4
1971-72	1,039	949	90	8.7
1972-73	1,050	944	106	10.1
1973-74	1,159	1,039	120	10.4
1974-75 [1]	1,165	999	166	14.2

[1] Fourth-year enrollment figures.

Source: For 1968-69 through 1972-73—Bureau of Health Resources Development, *Minorities and Women in the Health Fields*, DHEW Pub. No. (HRA) 75-22, U.S. Department of Health, Education, and Welfare, Washington, Government Printing Office, 1974.

For 1973-74—Association of American Veterinary Colleges, Comparative Data Summary of Schools and Colleges of Veterinary Medicine for 1973-74 Academic Year (unpublished).

For 1974-75—Unpublished data from the American Veterinary Association.

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TABLE 12

U.S. DOCTORAL SCIENTISTS & ENGINEERS BY FIELD, RACE AND SEX, 1973

FIELD	Total Both Sexes	Total Minority	Sex	Total	White/ Caucasian	Black/ Negro	Amer. Indian	Asian	Other	No Report
Total All Fields	244,921	13,282	M	223,600	194,335	1,611	103	10,164	281	17,166
			W	21,261	18,351	249	3	837	34	1,787
Phys. Sciences	53,425	3,025	M	50,939	44,347	402	14	2,327	70	3,779
			W	2,486	2,051	17	-	193	3	222
Chemists	33,881	1,902	M	31,931	28,124	358	-	1,315	45	2,089
			W	1,950	1,597	17	-	166	1	169
Physics/ Astronomy	19,544	1,124	M	19,008	16,223	44	14	1,012	25	1,690
			W	536	454	-	-	27	2	53
Math Sciences	13,515	782	M	12,523	10,680	86	-	592	25	1,140
			W	992	852	17	-	61	1	61
Mathematics	11,984	677	M	11,069	9,371	86	-	503	19	1,090
			W	915	788	17	-	51	1	58
Statisticians	1,531	105	M	1,454	1,309	-	-	89	6	50
			W	77	64	-	-	10	-	3
Computer Specialist	2,943	158	M	2,853	2,456	29	-	121	2	248
			W	90	80	-	-	3	-	4
Environmental Sci	11,074	346	M	10,767	9,614	23	-	309	4	817
			W	307	272	-	-	5	5	25
Earth Sci.	9,142	288	M	8,906	7,988	23	-	253	3	639
			W	236	209	-	-	4	5	18
Oceanographers	1,227	23	M	1,173	1,047	-	-	23	-	96
			W	54	47	-	-	-	-	7
Atmos. Sci.	705	35	M	688	572	-	-	33	1	82
			W	17	16	-	-	1	-	-
Engineers	37,569	3,322	M	37,404	31,914	86	17	3,118	76	2,193
			W	165	124	1	-	23	1	16
Life Scientists	64,540	3,443	M	56,843	49,699	505	12	2,357	76	4,194
			W	7,697	6,730	74	3	413	3	474
Biologists	41,035	2,346	M	34,821	30,188	383	10	1,494	46	2,700
			W	6,214	5,398	70	3	338	2	403
Ag. Scientists	11,893	336	M	11,718	10,488	26	2	275	13	914
			W	175	152	-	-	20	-	3
Medical Sci.	11,612	761	M	10,304	9,023	96	-	588	17	580
			W	1,308	1,180	4	-	55	1	68
Psychologist	28,286	579	M	22,509	19,968	152	12	245	12	2,134
			W	5,777	5,016	95	-	63	14	589
Social Scientists	32,773	1,616	M	29,191	25,169	319	48	1,093	33	2,529
			W	3,582	3,087	43	-	76	4	372
Economists	9,678	598	M	9,068	7,794	96	24	455	10	689
			W	610	550	5	-	6	2	47
Sociologists/ Anthropologists	7,455	364	M	6,011	5,094	96	9	193	8	611
			W	1,444	1,221	26	-	32	-	165
Other Soc. Scientists	15,640	654	M	14,112	12,281	127	15	445	15	1,229
			W	1,528	1,316	12	-	38	2	160
No Report	796	13	M	631	488	9	-	2	-	132
			W	165	139	2	-	-	-	24

Source: Characteristics of Doctoral Scientists and Engineers in the United States (1973) Detailed Statistical Tables, Appendix B, National Science Foundation, NSF 75-312-A.

TABLE 13

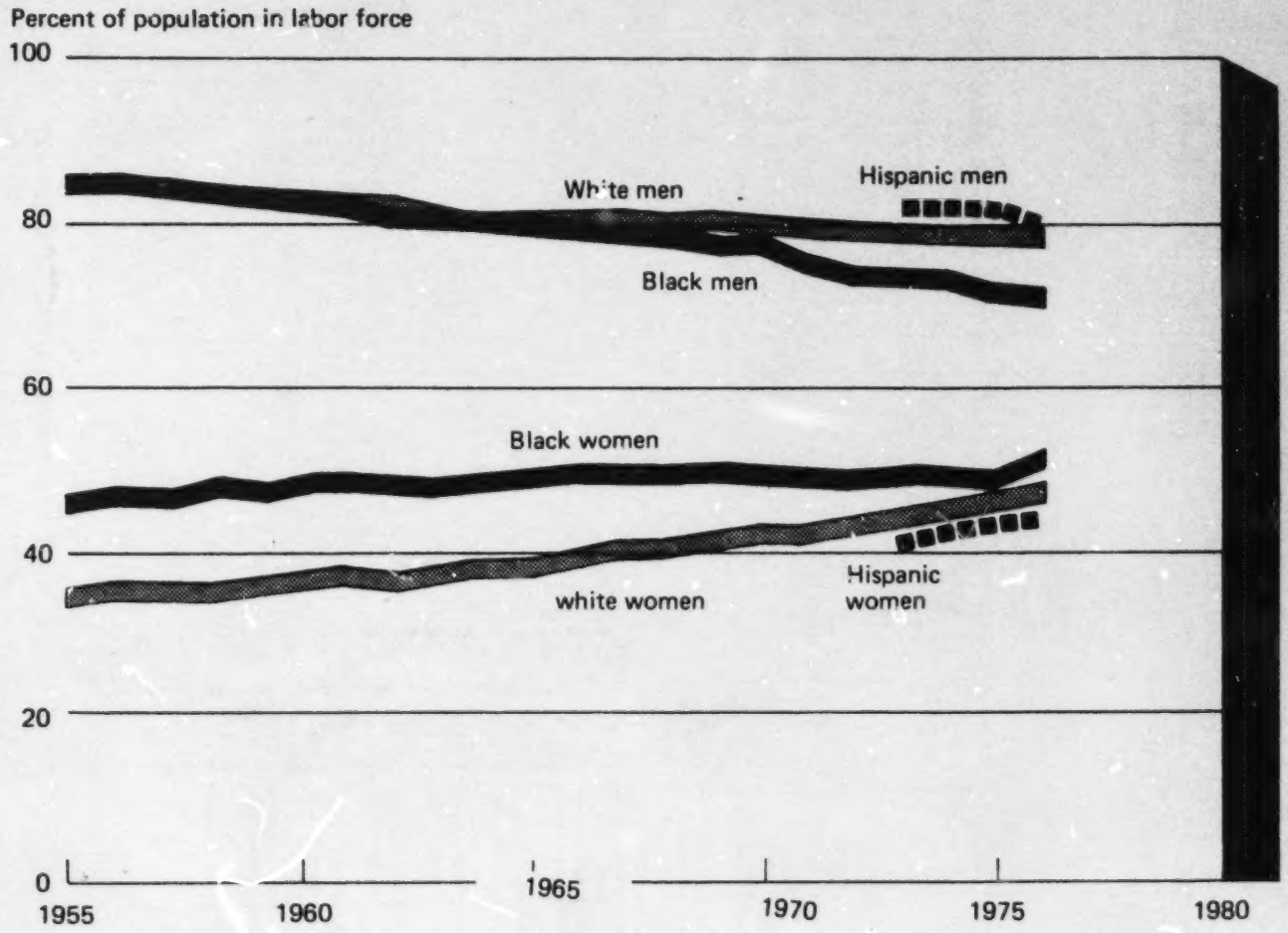
MINORITY WOMEN IN THE 1970 LABOR FORCE, BY FIELD

	Black		Amer. Indian		Asian		Hispanic	
	Coll/U Teachers	All Other	Coll/U Teachers	All Other	Coll/U Teachers	All Other	Coll/U Teacher	All Other
Chemistry	54	181	-	-	74	938	22	275
Physics	-	91	-	-	-	19	19	19
Geology	-	17	-	-	25	-	-	-
Marine Sciences	-	-	-	-	25	-	-	-
Atmos/Space Sci.	-	55	-	-	25	20	-	-
Mathematics	244	885	44	42	112	284	34	145
Engineering	76	757	-	63	-	249	36	298
Ag. Sciences	15	17	-	-	43	-	-	20
Biol. Sciences	106	641	30	17	244	355	22	129
Psychology	129	583	-	-	105	152	-	133
Economics	15	484	-	-	40	20	-	187
Sociology	132	126	-	-	19	-	-	-
Total	825	3,837	74	122	761	2,037	136	1,206

Source: 1970 Census, Occupational Characteristics, June 1973.

TABLE 14

LABOR FORCE PARTICIPATION RATES OF WOMEN AND MEN ANNUAL AVERAGES, BY RACE, 1955-76, AND SPANISH ORIGIN, 1973-76



Source: U.S. Dept. of Labor (1977) Bureau of Labor Statistics. U.S. Working Women: A Databook. Bulletin 1977. Washington D.C. p. 42.

TABLE 15

Work experience and median annual earnings of women by race and Spanish origin, 1975

Item	White	Black	Spanish origin			
			Total	Mexican-American	Puerto Rican	Other
Total[1] (thousands)	70,848	8,674	3,530	1,995	561	974
Worked during 1975: Number (thousands)	37,463	4,675	1,698	1,012	193	494
Percent	100.0	100.0	100.0	100.0	100.0	100.0
Full time	66.3	71.9	73.8	71.5	73.1	78.7
50 to 52 weeks	41.0	43.7	37.5	32.2	42.5	46.4
27 to 49 weeks	12.1	12.9	16.0	16.3	14.5	15.8
1 to 26 weeks	13.2	15.3	20.4	23.0	16.1	16.6
Part time	33.7	28.1	26.3	28.5	26.9	21.3
50 to 52 weeks	11.9	10.7	7.8	8.8	8.8	5.3
27 to 49 weeks	8.7	6.0	5.9	6.0	7.3	5.3
1 to 26 weeks	13.1	11.4	12.5	13.6	10.9	10.7
With some unemployment in 1975: Number (thousands)	7,540	1,493	499	289	67	145
Percent	100.0	100.0	100.0	100.0	(2)	100.0
Year-round workers with 1 or 2 weeks of unemployment	3.1	2.1	1.6	0.7	(2)	1.4
Part year workers with unemployment of:						
1 to 4 weeks	23.1	12.7	20.0	23.9	(2)	13.1
5 to 14 weeks	25.6	19.0	22.2	20.1	(2)	24.8
15 weeks or more	30.3	31.2	34.9	37.4	(2)	34.5
Did not work but looked for work	17.9	35.0	21.2	18.0	(2)	26.2
Spells of unemployment for part-year workers: Number (thousands)	5,962	938	385	234	46	105
Percent	100.0	100.0	100.0	100.0	(2)	100.0
1 spell	72.1	68.0	71.4	70.8	(2)	70.5
2 spells	16.4	16.4	13.8	14.2	(2)	14.3
3 spells or more	11.5	15.6	15.1	15.0	(2)	15.2
Median annual earnings, 1975	$4,085	$3,949	$3,618	$3,060	$4,457	$4,522
Year-round, full-time workers	7,514	7,237	6,431	5,987	7,144	6,787

[1] The survey was conducted in March 1976 and counted women 16 years and over as of the survey date.

[2] Percent not shown where base is less than 75,000.

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Source: U.S. Dept. of Labor (1977) Bureau of Labor Statistics, U.S. Working Women: A Databook. Bulletin 1977. Washington, D.C. p. 51.

TABLE 16

Women and men in the labor force by years of school completed, race, and Spanish origin, March 1976

Sex and years of school completed	White	Black	Spanish origin				Sex and years of school completed	White	Black	Spanish origin			
			Total	Mexican-American	Puerto Rican	Other				Total	Mexican-American	Puerto Rican	Other
WOMEN							**MEN**						
Total:							Total:						
Number (thousands)	32,799	4,377	1,516	876	171	468	Number (thousands)	49,651	4,702	2,420	1,517	301	601
Percent	100.0	100.0	100.0	100.0	100.0	100.0	Percent	100.0	100.0	100.0	100.0	100.0	100.0
Elementary school:							Elementary school:						
8 years or less	7.6	14.1	27.6	31.5	27.5	20.1	8 years or less	11.2	23.3	33.9	39.5	33.8	20.0
High school:							High school:						
1 to 3 years	16.3	23.8	18.6	21.9	18.1	12.6	1 to 3 years	16.4	24.7	20.5	20.7	26.5	17.0
4 years	45.4	39.8	37.0	33.6	42.1	41.5	4 years	36.8	34.0	27.1	24.8	28.8	32.1
College:							College:						
1 to 3 years	16.3	12.6	11.6	9.9	8.2	16.0	1 to 3 years	16.5	11.3	10.7	9.6	7.3	15.3
4 years or more	14.3	9.7	5.2	3.0	4.1	9.8	4 years or more	19.0	6.7	7.8	5.5	3.6	15.6

Source: U.S. Dept. of Labor (1977) Bureau of Labor Statistics, U.S. Working Women: A Databook. Bulletin 1977. Washington, D.C. p. 48.

TABLE 17

Labor force status of women and men by race, annual averages, 1955-76

(Numbers in thousands)

Year	Women						Men					
	Population		Labor force participation rate[1]		Unemployment rate[2]		Population		Labor force participation rate[1]		Unemployment rate[2]	
	White	Black and other	White	Black and other	White	Black and other	White	Black and other	White	Black and other	White	Black and other
1955	51,803	5,772	34.5	46.1	4.3	8.4	47,077	5,034	85.4	85.0	3.7	8.8
1956	52,372	5,857	35.7	47.3	4.2	8.9	47,604	5,120	85.6	85.1	3.4	7.9
1957	52,997	5,952	35.7	47.2	4.3	7.3	48,122	5,194	84.8	84.3	3.6	8.3
1958	53,645	6,047	35.8	48.0	6.2	10.8	48,747	5,287	84.3	84.0	6.1	13.8
1959	54,393	6,144	36.0	47.7	5.3	9.4	49,410	5,384	83.8	83.4	4.6	11.5
1960	55,215	6,369	36.5	48.2	5.3	9.4	50,067	5,595	83.4	83.0	4.8	10.7
1961	55,994	6,489	36.9	48.3	6.5	11.8	50,610	5,677	83.0	82.2	5.7	12.8
1962	56,660	6,663	36.7	48.0	5.5	11.0	51,055	5,777	82.1	80.8	4.6	10.9
1963	57,672	6,823	37.2	48.1	5.8	11.2	52,033	5,888	81.5	80.2	4.7	10.5
1964	58,665	6,972	37.5	48.5	5.5	10.6	52,869	5,978	81.1	80.0	4.1	8.9
1965	59,601	7,130	38.1	48.6	5.0	9.2	53,683	6,101	80.8	79.6	3.6	7.4
1966	60,503	7,292	39.2	49.3	4.3	8.6	54,063	6,200	80.6	79.0	2.8	6.3
1967	61,492	7,477	40.1	49.5	4.6	9.1	54,608	6,298	80.7	78.5	2.7	6.0
1968	62,513	7,666	40.7	49.3	4.3	8.3	55,435	6,413	80.4	77.6	2.6	5.6
1969	63,564	7,873	41.8	49.8	4.2	7.8	56,349	6,549	80.2	76.9	2.5	5.3
1970	64,624	8,110	42.6	49.5	5.4	9.3	57,488	6,773	80.0	76.5	4.0	7.3
1971	65,697	8,345	42.6	49.2	6.3	10.8	58,762	6,973	79.6	74.9	4.9	9.1
1972	67,138	8,730	43.2	48.7	5.9	11.3	60,221	7,237	79.6	73.7	4.5	8.9
1973	68,090	9,102	44.1	49.1	5.3	10.5	61,213	7,532	79.5	73.8	3.7	7.6
1974	69,064	9,445	45.2	49.1	6.1	10.7	62,311	7,779	79.4	73.3	4.3	9.1
1975	70,115	9,750	45.9	49.2	8.6	14.0	63,386	8,017	78.7	71.5	7.2	13.7
1976	71,147	10,056	46.9	50.2	7.9	13.6	64,422	8,279	78.4	70.7	6.4	12.7

[1] Percent of population in labor force.
[2] Percent of labor force unemployed.

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Source: U.S. Dept. of Labor (1977) Bureau of Labor Statistics, U.S. Working Women: A Databook. Bulletin 1977. Washington, D.C. p. 44.

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TABLE 18

Labor force status of women by years of school completed, March 1976

(Numbers in thousands)

Item	8 years or less (including none)	High school		College	
		1 to 3 years	4 years	1 to 3 years	4 years or more
Total, 16 years and over	13,464	16,359	31,878	11,023	8,110
In labor force	3,169	6,463	16,852	6,026	5,307
Labor force participation rate[1]	23.5	39.5	52.9	54.7	65.4
Unemployed	332	883	1,420	389	184
Unemployment rate[2]	10.5	13.7	8.4	6.5	3.5

[1] Percent of population in labor force.
[2] Percent of labor force unemployed.

TABLE 19

Median annual earnings of year-round full-time workers 14 years and over by sex, 1955-75

Year	Annual earnings		Women's earnings as percent of men's
	Women	Men	
1955	$2,719	$ 4,252	63.9
1956	2,827	4,466	63.3
1957	3,008	4,713	63.8
1958	3,102	4,927	63.0
1959	3,193	5,209	61.3
1960	3,293	5,417	60.8
1961	3,351	5,644	59.4
1962	3,446	5,794	59.5
1963	3,561	5,978	59.6
1964	3,690	6,195	59.6
1965	3,823	6,375	60.0
1966	3,973	6,848	58.0
1967	4,150	7,182	57.8
1968	4,457	7,664	58.2
1969	4,977	8,227	60.5
1970	5,323	8,966	59.4
1971	5,593	9,399	59.5
1972	5,903	10,202	57.9
1973	6,335	11,186	56.6
1974	6,970	11,889	58.6
1975	7,504	12,758	58.8

NOTE: Data for 1955 to 1966 are for wage and salary workers only and exclude self-employed persons.

Source: U.S. Dept. of Labor (1977) Bureau of Labor Statistics, U.S. Working Women: A Databook. Bulletin 1977. Washington, D.C. pp. 32,35.

TABLE 20

Median annual earnings of women and men who worked year round, full time by race and Spanish origin, 1975

Sex and earnings	White	Black	Spanish origin			
			Total	Mexican-American	Puerto Rican	Other
WOMEN						
Worked year round, full time in 1975[1] (thousands)	15,371	2,043	636	326	82	229
Percent	100.0	100.0	100.0	100.0	100.0	100.0
Under $2,000[2]	4.5	4.2	4.6	5.8	2.5	3.5
$2,000 to $4,999	15.4	21.4	23.0	27.6	18.5	18.4
$5,000 to $9,999	54.6	53.2	58.0	55.2	64.2	60.5
$10,000 to $14,999	20.3	18.4	12.9	10.1	14.8	14.9
$15,000 to $24,999	4.7	2.8	1.6	0.9	–	2.6
$25,000 or more	0.5	0.1	0.2	0.3	–	–
Median annual earnings, 1975	$ 7,441	$7,223	$6,388	$5,945	$7,144	$ 6,758
MEN						
Worked year round, full time in 1975[1] (thousands)	33,975	2,775	1,511	907	201	404
Percent	100.0	100.0	100.0	100.0	100.0	100.0
Under $2,000[2]	2.1	1.8	1.5	1.4	1.5	1.5
$2,000 to $4,999	4.1	10.8	7.7	9.6	5.0	5.0
$5,000 to $9,999	23.3	40.0	46.3	45.8	57.2	41.6
$10,000 to $14,999	33.0	32.9	28.7	27.6	27.9	32.2
$15,000 to $24,999	28.8	13.5	13.4	13.6	7.5	16.1
$25,000 or more	8.6	0.9	2.3	1.9	1.0	4.0
Median annual earnings, 1975	$12,877	$9,098	$9,413	$9,247	$8,512	$10,197

[1] The survey was conducted in March 1976 and counted persons 16 years and over as of the survey date who worked 50 to 52 weeks in 1975, usually full time (35 hours or more per week).

[2] Includes workers with no earnings or a loss.

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Source: U.S. Dept. of Labor (1977) Bureau of Labor Statistics, U.S. Working Women: A Databook. Bulletin 1977. Washington, D.C. p. 52.

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APPENDIX B: FOR FURTHER READING

Individual career exploration is an integral part of the career decision-making process. Chapter 6 discusses how to use the library effectively for career exploration, and Chapters 3 through 5 include references to books and articles on women in specific health occupations. The following books and pamphlets are recommended for further reading. Some provide information on a range of health careers. Others focus on how to make career and life decisions. Most of these sources are available in public libraries, counseling centers and book stores. Others can be ordered directly from publishers.

CAREER DECISION READINGS

Scholz, Nelle Tumlin, Judith Sosebee Prince and Gordon Porter Miller (1975) How to Decide: A Guide for Women. New York: College Board Decision Making Program. Order from: College Board Publication Orders, Box 2815, Princeton, New Jersey 08540. ($5.95) This how-to workbook outlines practical methods for decision making including setting goals, developing individualized plans and taking action.

Janis, Irving and Leon Mann (1977) Decision Making. New York: The Free Press. Decision Making is an in-depth work on personal decision making in all areas of life. It is not intended for the casual reader, but rather for the serious student of decision-making processes. Guidance counselors might find this especially useful.

Catalyst Career Series. Order from: Catalyst Publishers, 14 East 60th Street, New York, New York 10022. Catalyst publishes material for women in the areas of education and employment. Write for a catalogue of publications. Pamphlets available are geared to the needs of reentry women, women interested in upward career mobility and students contemplating first careers. Additional booklets are available on health professions and sciences Many women's centers, schools and public libraries receive these and other Catalyst publications.

HEALTH OCCUPATIONS READINGS

Astin, Helen (1969) The Woman Doctorate in America: Origins, Career and Family. New York: Russell Sage Foundation. This research report describes the background and career patterns of women doctorates in the United States. It is an especially valuable resource for women planning careers in the sciences.

Kinsinger, Robert E., ed. (1974) Health Technicians. Chicago: J.G. Ferguson. This is an introduction to the paraprofessions. Each chapter is written by a practitioner in his or her own field. Although the book reinforces sex stereotyping of occupations by referring to dental lab technicians, for example, as "he," and dental assistants as "she," it offers good descriptions of careers including some of the newer emerging ones. Although geared toward high school readers this volume contains useful information for women of all ages.

Odgers, Ruth and Burness J. Wenberg, eds. (1972) Introduction to Health Professions. St. Louis: The C.V. Mosby Company. Descriptions of established health professions, some newer health professions and paraprofessions are included in this book. Also included are examples of typical work situations, comparative charts of required years of education, and names and addresses of professional associations.

Health Resources Statistics (1976) Health Manpower and Health Facilities. U.S. Department of HEW, Health Resources Administration. Washington, D.C.: Government Printing Office. DHEW Publication No. (HRA) 76-1509. This volume reports statistical data on health occupations along with narrative descriptions of health professions, paraprofessions and scientific careers. Updated and reissued yearly, this is a valuable, comprehensive source book for both counselors and career seekers.

GUIDES TO PERIODICAL LITERATURE (Journals and Magazines)

EDUCATION INDEX is a cumulative author and subject index to selected educational periodicals, proceedings and yearbooks.

READERS' GUIDE indexes articles in popular magazines. Many articles on careers can be located using the subject headings.

MAGAZINE INDEX is a new index similar to Readers' Guide.

INDEX MEDICUS indexes articles in technical and professional journals. Articles on health careers are sometimes indexed.

SOCIAL SCIENCE AND HUMANITIES INDEX indexes social scientific studies of careers and career patterns.

CAREER COUNSELING READINGS

Harmon, Lenore W., Janice M. Birk, Laurine E. Fitzgerald and Mary Faith Tanney, eds. (1978) Counseling Women. Brooks/Cole series in counseling psychology. Wadsworth Publishing Company, Inc. Belmont, CA 94002. This anthology is a valuable reference for counselors who work with women. The book covers career and other types of counseling, and provides professionals not only with practical counseling tools and strategies, but with material on their own personal-professional development.

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